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ABSTRACT

The focus of this study was a survey of faculty and student use/needs of library services and user education at Daniel Library, the Citadel, the Military College of South Carolina. More specifically, the study sought to determine user information needs and how the library staff should adapt for meeting the educational and research needs of its clientele. Data were collected in separate questionnaires for testing three multi-part null hypotheses with oneway ANOVA. The student survey was pilot tested in spring, 1991. The population of the study was 141 faculty and 284 students. Means, responses in percentages, and one-way analysis of variance with Scheffe post hoc comparisons were used to test the hypothesis and to analyze the findings. Twelve recommendations were made for improving the Citadel library's service and user education mission based on this investigation. The sample faculty and student questionnaires are included in the appendices. (Contains 140 references.) (Author/JLB)

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Faculty and Student Assessment of The Citadel Library User Services

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by

J. Edmund Maynard

A dissertation submitted in partial fulfillment of
the requirements for the degree of Doctor of Science
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Faculty and Student Assessment of The Citadel Library User Services

Abstract

The focus of the study was a survey of faculty and student use/needs of library services and user education at Daniel Library, The Citadel, The Military College of South Carolina. More specifically, the study sought to determine user information needs and how the library staff should adapt for meeting the educational and research needs of its clientele.

Data were collected in separate questionnaires for testing three multi-part null hypotheses with oneway ANOVA. The student survey was pilot tested in Spring, 1991. The population of the study was 141 faculty and 284 students. Means, responses in percentages, and one-way analysis of variance with Scheffe post hoc comparisons were used to test the hypotheses and to analyze the findings.

To test Hypothesis I faculty responses were divided by three subject area groups (social sciences, humanities, and sciences) for nine individual oneway ANOVAs on library use and value. To test Hypothesis II student responses were divided by three subject area groups (social sciences, humanities, and sciences) for 19 individual oneway ANOVAs on library use and value. To test Hypothesis III student responses divided by class standing (lower-level undergraduates, upper-level undergraduates, and graduate students) for 25 individual oneway ANOVAs on information needs and user education.

Faculty responses by clusters differed on five of nine items tested. For four items on resources purchases when budgets are cut, journals were very important to all faculty respondents, while sciences respondents saw media purchases less important than all other faculties and humanities respondents saw library book holdings relatively more important than other disciplines. Sciences faculties differed significantly with all other faculties on two of five items testing faculty encouragement of students to use the library for specified assignments (the critical thought paper; the research paper or prospectus). Sciences faculties differed with social sciences faculties on the encouragement of students to use the library for a book or journal review assignment. Seventy percent of the faculty responded "adequate" or "more adequate" on whether library holdings were adequate to produce quality project assignments.

All student responses tested for r coefficients showed no systematic correlation for the number of courses taken in Fall, 1991 and the number of courses requiring use of the library. Student responses by clusters differed on 8 of 19 items tested. Based on frequency of responses, student highest frequency of "most frequent" reason to use the library was to checkout books. Findings supported differences between student clusters that respondents of the sciences used the library less than respondents of other disciplines. Mean totals for all sciences respondents were

lower for all assignments except gathering and interpreting data.

Testing of groups divided by class standing showed no differences in student perception for 18 of 25 items on information need and library instruction. Students perceived a need for information, but not that they needed information help. More than 40.8 percent of all respondents "strongly agree" that acquiring information was important to their coursework and/or job performance and 71.1 percent responded "higher" or "highest" degree that they were able to determine on their own the value or relevance of a source to their research task. All groups showed no differences in their perception of finding what they needed in the library because of their research ability, their luck, or their urgent need to find information. However, results indicated that graduate student respondents saw reading reviews, reading journals in your field, and reading journals in other fields significantly more important than undergraduates students in gathering information for classes, while graduate students saw using abstracts and indexes significantly more important than juniors and seniors.

ANOVA results on five of the seven methods of finding information were not significant. Undergraduate students valued assistance with determining the value or relevance of a source. The pattern of responses and ANOVA findings suggested that all students have an expressed need for use instruction assistance and a decided preference for "help as

needed from a reference librarian" as the instruction method.

The study showed the discipline (social sciences, humanities, or sciences) in which the students were enrolled proved to be a significant factor in their perception of library use and value. The class standing of students (lower level undergraduate, upper-level undergraduate and graduate) was not a significant factor in the students perception of information need and library instruction. Twelve recommendations were made for improving The Citadel Library's service and user education mission based on this investigation.

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Chapter I

Introduction

During the past decade, the transition from the Industrial Age to the emerging Age of Information has been popularized by many writers (Toffler, 1980; Naisbitt, 1982). In this transition, authorities (Quirk & Whitestone, 1982; Morris, 1989) have reported that libraries are struggling to keep pace with the resulting information explosion. Despite the evolving formats of published information, ". . . the most traditional information industry, book publishing, is not shrinking . . ." (Breivik & Gee, 1989, p. 14). Rather, publication of books in the United States has increased from 42,377 in 1980 to 45,718 (preliminary) in 1989 (U.S. Department of Commerce, 1991).

In "Libraries and Learning," Oscar Handlin (1987) commented on the role of research libraries in the information explosion: "Among the uncounted casualties for the modern information explosion are the research libraries--and particularly those in the United States" (p. 205). In closing, Handlin contended that libraries are too important to leave to librarians, especially since librarians faced with budgetary constraints usually count themselves with administrators:

> The issue, finally, is educational and turns on the openness of learning. Large or small, the research library not only offers readers information; it invites them to quest for knowledge. Teachers and students

> therefore have an evident concern with its welfare. Yet the academic people who should be most concerned show no awareness of their stake in the research library. However ready they may be to pronounce on the affairs of the country, the world, the universe, they are surprisingly reticent when it comes to defining their own self-interest (p. 218).

To deal with the storage and retrieval of so much information, libraries have become more dependent upon automation for basic functions such as book acquisitions, serials check-in and circulation. The card catalog is also available online. The effective use of new electronic technologies is a major objective for academic libraries (Dempsey, 1992; Arms, 1990). Examples of innovative programs include Carnegie Mellon University's Project Mercury (electronic library) and Dartmouth College's Infomatic System (an integrated information retrieval system).

The electronic transmission of data has radically changed the way in which students and faculty members access and use library services. For example, in "The Library as a Networked Information Server," Larsen (1991) projected that as electronic technology renders access more manageable, and as publication costs increase

> . . . expansion of services through demand-driven access will overtake comprehensive collection development as goals in major research libraries.
>
> A realistic basis for library planning, therefore,

> is a collaborative information utility model through which network-accessible resources expand the reach of the patron, the library, and the information servers for a network built on client/server relationships (p. 43).

Because electronic information technology services like CD-ROM (Compact Disk Read Only Memory) and telefacsimile (FAX) have yielded improved access to information, librarians are developing training strategies that adapt bibliographic instruction (BI) and user education philosophies to meet the needs of their clientele to operate integrated online systems. Surveying fifty librarians influential in library instruction, Pausch and Popp (1989) reported that respondents identified technology and its effect on libraries, librarians and BI applications as a major concern facing user education in the 1990s.

According to Evelyn Daniel (1987), the impact of changing technology on basic library functions such as book acquisitions, serials check-in and circulations will be important for a long time as "Online catalogs allow increasingly transparent bibliographic access to the world's documentary sources via telephone links to the library's computers. Physical delivery lags behind bibliographic access and is the locus of future effort" (Daniel, 1986, p. 53). Nevertheless, library authorities (Lancaster, 1982; Wood, 1988; and Durrance, 1989) have agreed that, during its developmental era, computer technology and electronic-based information media will unlikely replace traditional document delivery in paper and micrographics.

Statement of the Problem

Traditionally, librarians have seen their responsibility for monitoring library use and user education more as one of document delivery than one of information transfer (Galvin, 1990; Durrance, 1983). In "Changing Technology and Tomorrow's Reference Services," Galvin (1990) defined the difference between document delivery and information transfer by maintaining that information technology allowed and obligated librarians to transform the library's mission to transfer information whatever the format:

> Information transfer is, at once, a broader, more inclusive term than document delivery and a much higher order process. In assessing what occurs at the reference desk, even now we seemingly continue to assume either that document delivery is synonymous with information transfer or that information transfer follows from document delivery in some fashion that is not ordinarily the professional concern of the librarian. We must commonly behave professionally as though the proper domain of librarianship does not in fact extend very far at all beyond the boundaries of document delivery (p. 38).

Online information technologies such as intelligent library catalogs, electronic journals, and fax on demand, and the integrated services digital network (ISDN) have altered end-user access to "the library of the future" (LOTF) more than had been expected (Joseph, 1990). For example, Joseph projected that in the LOTF, many librarians ". . . have become 'educators': providing learning experiences for using/assessing electronic information, electronic publishing, and word processing for electronic information age needs" (Joseph, p.8). Joseph also indicated that for many library budgets, technology or electronic information technology was a sizable portion of the budget if not more than 50 percent. Moreover, as increased computing power allows media productions like imaging and sound, libraries and computer centers will be called upon for increased education and support (Mitchell, 1990; Tompkins, 1990).

To meet new user education requirements, Kenney (1987) saw BI librarians building ". . . upon what they have learned as they help patrons adapt to the use and potential of an online environment" (p. 197). For example, Malinonico (1989) concluded that "The jury is still out on whether modern technologies will lower barriers to information access" (p. 135). Malinonico noted, however, that software vendors were devoting more attention to human-machine interface for online catalogs accessing the library's holdings as well as serving ". . . as platforms for computer-assisted bibliographic instruction" (p. 129).

In planning for educating patrons to handle change to electronic formats, assessment of current use/awareness of library resources, information needs, and user perception of the need for library instruction is essential before combining information-technology and information-seeking skills as an information literacy concept. According to Baker and Lancaster (1991), a fundamental step in librarians determining information needs is to ask users. Do users need instruction in basic information seeking skills and in critical thinking/problem-solving skills to make an effective transfer of information? Also, in this transition from document delivery, whatever the format, to transferring information content, determining user information needs will enable educators to fulfill both tasks.

Purpose

The purpose of this dissertation was to assess patron use/needs of library user services, especially user education at Daniel Library, The Citadel, The Military College of South Carolina. The investigator has held various positions over the 1982-1992 period of review, including his current position as Circulations Librarian with partial responsibility for public service use and maintenance of library resources. To obtain evidence for determining appropriate interventions on improving library use and instruction to support lifelong learning for The Citadel graduate, a use/needs assessment was conducted. The study sought to evaluate faculty and student attitudes on user information needs, awareness and value placed on library services. According to Newhouse (1990), a "Needs assessment . . . is central to selecting the correct problems for resolution, and will provide the necessary information for determining appropriate interventions" (p. 33).

A needs assessment was important to the Daniel Library staff as an initial step toward planning: 1) for improving instruction programs, and 2) for encouraging communication between the library staff and the user in meeting research and information needs. The study data provided a college library case study for similar institutions that may apply a rationale for a needs assessment's ". . . systematic attempts to determine and close the more important gaps between 'what is' and 'what should be'" (Newhouse, 1990, p. 36).

Background of the Study

The Citadel, The Military College of South Carolina, located in Charleston, South Carolina, evolved from arsenals established by the state legislature in reaction to the averted Denmark Vesey slave uprising in 1822 (Bond, 1936). On December 20, 1842, a bill was passed organizing these arsenals into schools at the state capital, Columbia, and at Charleston (South Carolina Act of 1842, 1873; Bond, 1936).

Today, The Citadel is a liberal arts college, organized as a resident 2,000 member Corps of Cadets. The College also has an additional 800 full-time equivalent evening graduate/undergraduate enrollment. The College offers undergraduate degrees in fourteen subjects, as well as master's degrees in business, education, history, and the specialist degree in education for school administration and school psychology.

The College library is medium-sized with approximately 200,000 books and 600,000 micromedia pieces. The library budgeted income was $900,000 for 1989-1990 with $460,000 for staff, 440,000 for materials, equipment and services (American Library Directory, 1990). The current staff includes seven professionals and fourteen full-time equivalent library technicians and student assistants. The investigator has been Circulations Librarian during most of the development period of emerging electronic information services and technologies.

Library use, as determined by circulation of materials for outside of library use, has remained stable during the 1980s. There were 35,491 items circulated in 1981-82 (Citadel, The Military College of South Carolina, 1982) and 39,950 items in 1989-90 (Citadel, The Military College of South Carolina, 1990). Although all who enter the building are not library users, the electronic count was 3778 for a typical week in the 1989-90 fiscal-year.

In 1981-82, the library received a Citadel Development Foundation (CDF) grant for retrospective conversion of its catalog records to machine readable form (Citadel, The Military College of South Carolina, 1982). This CDF grant was the first of many grants over the next decade to be applied in a major service shift from automation of library processes to electronic information services and technologies. Subsequent to retrospective conversion, the Library Director wrote ". . . that for the first time in history we [the interlibrary library staff] filled more interlibrary loans requests from other libraries than we borrowed" (Citadel, The Military College of South Carolina, 1983, p. 42).

This major electronic impact on interlibrary loans coincided with the beginning of librarian mediated online database searching in 1982 and progressed to end user CD-ROM searching of databases in the early 1990s. The library ended a decade of automation with an integrated online library system (Data Research Associates' ATLAS) and with many of its CD-ROM holdings accessible through a campus-wide local area network.

The Citadel Library has worked cooperatively with area libraries since the 1960s. In 1969-1970, The Citadel was a founding member of the four-institution Charleston Higher Education Consortium (CHEC) as authorized by the state Commission on Higher Education (South Carolina Act of 1969). Before the legislative mandate for CHEC was repealed, effective July 1, 1988 (South Carolina Act of 1988), the Consortium's primary purpose was maintaining a working relationship among member institutions.

Automation and consortium cooperation has permitted efficient reciprocal borrowing for patrons since 1969. CHEC committees or task forces developed many projects on catalog, collection development, circulation, and other resource sharing activities between CHEC member libraries. For example, the investigator served as a committee member on the

CHEC Public Services Subcommittee for establishing a courier service in 1982. The courier service has permitted CHEC member institutions to rely on other members for materials not owned or not necessary for their academic support requirements.

The library component of the consortium has continued informally as the Charleston Academic Library Consortium (CALC). Current CALC members include: 1) Charleston Southern University; 2) The Citadel; 3) University of Charleston; 4) Medical University of South Carolina; and 5) Trident Technical College. In 1992, The Citadel Library, as a CALC institution, joined with two other CALC institutions and the Charleston County Library in connecting the library online catalogs and five locally mounted periodical databases in a metropolitan area network (MAN). Plans include the MAN connecting all CALC institutions, plus the Charleston County Library in the 1992-1993 academic year ("Coastnet Connects," 1992).

Notwithstanding the value of the consortium arrangement, the primary objective of service of the Daniel Library is to the College's faculty members and students. Since the 1960s, library use instruction meant orientation tours and class-related instruction by librarians and on request. The 1982-83 College self study reported that student use of the library was often not measured; perhaps the library was underused (Steering Committee, [1983]). The report also suggested a more comprehensive library mission statement, addressing bibliographic instruction.

In response, the library faculty drafted a revised Daniel Library mission statement for submission to the college-wide standing Library Committee in school year 1987-1988. At revision time, the Committee consisted of the Library Director and one representative from each academic department. The following is the mission statement, plus goal eleven and subsequent objectives to meet current user education responsibilities:

THE CITADEL

DANIEL LIBRARY MISSION STATEMENT

> The primary mission of Daniel Library is to provide the resources, services and library environment that support the Citadel's academic goals, involving both students and faculty. The library should facilitate students' ability to learn and to conduct effective research and information gathering as it relates to their studies and research at The Citadel. This role calls for contributing to the liberal arts and professional education of students by developing their intellectual skills and independence through the library's various collections, reference expertise, and services such as interlibrary loan and online data base searching (Citadel, The Military College of South Carolina, 1989, App. No. 1, p. 1).
>
> GOAL 11. To interpret library collections, policies, goals, and procedures to the various constituencies of

the library.

a. To provide tours of the library to students, faculty, staff and other users of the library as requested and as part of freshman orientation and other programs.

b. To provide classes for students as requested by faculty or staff to meet particular or specialized needs.

c. To develop and provide self-paced workbooks, information sheets, bibliographies and other instructional packages that meet the needs of classes, or of students and faculty in general.

d. To instill in patrons, particularly students, a life-long appreciation of library resources and services and how to use them (Citadel, The Military College of South Carolina, 1989, App. No. 1, p. 3).

Additionally, the newly revised College core curriculum report (Ad Hoc Curriculum Study Committee, 1987, p. 4), subsequently adopted by the College, recommended that departments develop a core curriculum program to facilitate student communication and develop student thinking and research skills.

Before 1988, library user education consisted of library orientation or tours. Librarians also conducted class-related library instruction for a particular professor or assignment task on demand. Beginning in school year 1988-89, the library staff responded to core curriculum recommendations by preparing a self-paced library (instruction) tour workbook and user's manual. In the following academic year, the self-paced tour was implemented with a pretest, posttest, and student evaluation.

After analysis and revision, the self-paced tour and user's manual replaced library freshman orientation tours in school year 1990-1991. Through the self-paced tour, students gain basic skills training before receiving specific course-related library instruction that a professor may schedule to support a particular course syllabus.

Significance of the Problem

The major focus of this study was to conduct a needs assessment of library use/information needs and user opinion on library use instruction. Through surveying the Daniel Library users' perception of information need and information-seeking skills, the library staff can accomplish the initial step in improving its user education program for preparing an information-literate graduate.

By calling information literacy ". . . a survival skill of the Information Age", the 1989 report of the American Library Association Presidential Committee on Information Literacy (1989, p. 6) challenged The Citadel Library--indeed, the entire profession to identify user information needs and to provide services that meet these needs in order to prepare an information-literate graduate. The Committee also recognized the importance of needs assessment in preparing graduates to be information-literate:

> Such a learning process would actively involve students in the process of knowing when they needed to address a given problem or issue, finding needed information, evaluating the information, organizing the information, and using the information effectively to address the problem or issue at hand (p. 7).

An information society demands more than computer literacy. To meet the demands of an information society, Breivik and Gee (1989) maintained that librarians need an educational philosophy based on the information environment, along with a redefinition of literacy that includes information skills.

Paradoxically, however, there was almost no national recognition of the library's role in the education reform reports of the 1980s such as A Nation at Risk (United States National Commission on Excellence in Education, 1983) and the 1985 Frank Newman report for the Carnegie Foundation for the Advancement of Teaching, Higher Education and the American Resurgence (Breivik and Gee, 1989). These education reform reports issued on the quality of education in America today noted that the committees made little or no mention of libraries (Breivik, 1989; Shubert, 1984) despite the statistical evidence of functional illiteracy reported by the initial report, A Nation at Risk:

- About 13 percent of all 17-year-olds in the United

States can be considered functionally illiterate. Functional illiteracy among minority youth may run as high as 40 percent.

o Many 17-year-olds do not possess the "higher order" intellectual skills we should expect of them. Nearly 40 percent cannot draw inferences from written material; only one-fifth can write a persuasive essay; and only one-third can solve mathematics problems requiring several steps (p. 8-9).

In response to little mention of libraries in the reform reports, American Library Association members (Richard M. Dougherty, Jane Anne Hannigan, Peggy Sullivan, Douglas L. Zweizig, and James W. Liesener) prepared five discussion papers, Libraries and the Learning Society: Papers in Response to A Nation at Risk (Shubert, 1984). Writing for academic librarians, Richard M. Dougherty (1984) reminded seminar participants that bibliographic instruction was "an obvious candidate" for adopting ". . . a 'building block' strategy promoting the rebuilding of our secondary schools and the establishment of closer linkages between secondary schools and post-secondary institutions" (p. 22).

In the 1986 Carnegie Foundation education reform report, College, Boyer (1987) revealed why libraries were so little noted. According to Boyer, "Today, about one out of every four undergraduates spends no time in the library during the normal week, and 65 percent use the library four hours or less each week" (p. 160). This problem is not a new one.

Over half a century ago, Branscomb (1940) reported that undergraduates ". . . do not use the library's books because in a great deal of their work they do not have to; they can do quite acceptable work, in some cases possibly better work, without doing so" (p. 52).

Nearly half a century later, in 1987, science librarian, Susan Anthes and philosophy professor, Lawson Crowe, confirmed Branscomb's finding: "We have observed in our own institution,. . ., that many courses do not require library use nor do they teach the skills needed for the acquisition of information" (1987, p. 92). Likewise, Erdmann (1990) observed, "In engineering education today, information literacy--the ability to find and use information efficiently, especially in keeping up-to-date on technology--is not considered an important skill for students" (1990, p. 56).

In contrast, a biology professor, Nussbaum (1991), found that introducing an article review assignment was amenable to writing across the curriculum if student needs were assessed. Nussbaum recommended that colleagues tour the library with their students, alert the library staff of their plans, but not allow the librarian to conduct the tour for them. An anthropology professor, Weiskel (1985), described in "Bibliographic Research and the Love of Learning," the use of technology and library use instruction through a program called BIBLIO-File. The program was interactive and the procedure had ". . . enhance[d] the learning process and encourage[d] students to develop skills and insights in a cumulative fashion" (Weiskel, 1985, p. 13).

Access to federal information is necessary for an informed citizenry to understand public policy information (Durrance, 1983). Because information is essential to public understanding and because technological advances have provided easier access or disseminated this information, the U.S. Congress, Office of Technology (OTA) (1988) prepared a report, Informing the Nation: Federal Dissemination in an Electronic Age, to improve storage and dissemination. In the OTA report, Wood (1988) viewed electronic publishing as the key to integrating the various information microform and electronic formats ". . . within a common technical framework. Electronic publishing can also serve to connect the various so-called islands of automation in an organization--office automation, publishing systems, records management, document storage systems, and the like" (p. 48). As a select federal depository library, the Daniel Library information storage, use, and user education program would benefit from such an approach.

Consequently, to change the perceived and real importance of library use and information literacy for the information age, Tompkins (1990) advocated a new "teaching library" based on the convergence of five factors:

(1) a newly aligned influential group of computer-literate students, teachers, librarians, computer professionals, media specialists, planners, and

> architects . . .; (2) the seeding of any and every building on campus with microcomputer technologies; (3) a growing sense of the legitimacy and importance of student learning wherever it may occur . . .; (4) a consensus about the need to create campus environments that are by design productive for teaching and learning; and (5) the current availability of resources to program, design, and construct (or renovate and expand) libraries supportive of the reform of undergraduate teaching and learning (pp. 77-78).

After completing a needs assessment of user attitudes on library use/information need and user education into one of information literacy, Tompkins' (1990) new "teaching library" calls for a campus strategy to reconceptualize the library as

> . . . an integrated environment, replete with information specialists working in concert with teaching faculty and rich in courseware and information resources --a facility in which text, animation, graphics, sound, and video (and professional support) are configured to meet the needs of the independent learner, which is, after all, the primary goal of an information-literate society (p. 78).

Research Questions

The research strategy was designed to investigate the following research questions:

I. To what degree do college subject area groups differ in their responses on library use and value? The

Citadel college-wide groups were called clusters: A) the social sciences (Business Administration, Education, Health and Physical Education, and Psychology); B) the humanities (English, History, Library, Modern Languages, and Political Science); and C) the sciences (Biology, Chemistry, Civil Engineering, Electrical Engineering, and Physics). The study investigated faculty by cluster responses on library use and value as reflected in the following questions/statements of inquiry:

A. To what degree do you usually encourage students to use library resources for assignments below?
    1. critical thought paper
    2. research paper or prospectus
    3. oral report
    4. book or journal article review
    5. gathering or interpreting data

B. How important to you are purchases in the following areas when budgets are cut?
    1. periodicals/journals collections
    2. media (audio/videorecordings)
    3. reference collection (indexes, abstracts, and databases
    4. main collection (circulating books)

II. To what degree do student majors in three broad subject area groups differ in their responses on library use and value clusters? The Citadel groups were called clusters: A) the social sciences (Business Administration, Education, Health and Physical Education, and Psychology), B) the humanities (English, History, Modern Languages, and Political Science), and C) the sciences (Biology, Chemistry, Civil Engineering, Electrical Engineering, and Physics). The study investigated students by cluster responses on library use and value as reflected in the following questions/statements of inquiry:

A. From the checklist below of reasons for library use, indicate how frequently these reasons apply to you.
   1. to checkout or use books
   2. to use periodicals
   3. to use print or computer indexes
   4. to study my own textbooks
   5. for recreational reading
   6. to seek research assistance
   7. for interlibrary loan borrowing

B. During Fall, 1991, how valuable have library resources and services been for completing the assignments below?
   1. critical thought paper
   2. research paper or prospectus
   3. oral report
   4. book or journal article review
   5. gathering or interpreting data

C. For your major field of study, circle the adequacy of service assistance and library holdings listed.
    1. reference librarian
    2. microfilm/microfiche
    3. catalog (ATLAS)
    4. reserves/circulation
    5. interlibrary loan
    6. periodicals/journals
    7. books

III. To what degree do students in class standing groups differ in their responses on information needs assessment and library use instruction? The Citadel groups by class standing were: A) lower-level undergraduate students (freshmen and sophomores), B) upper-level undergraduates (juniors and seniors), C) and graduate students. The study investigated students by cluster responses on information needs assessment and library use instruction as reflected in the following questions/statements of inquiry:

A. Acquiring information is important to my coursework and/job performance.

B. In gathering information in the library, indicate the degree you "found what you needed" because of your
    1. research ability,
    2. browsing or luck, or
    3. urgent need to find the information.

C. When unable to find what I need in the library, I normally conclude that the library does not have the information.

D. How important to you are the following methods in gathering information for courses?

1. reading journals in your field
2. reading journals in other fields
3. searching library catalogs
4. locating citations in sources
5. consulting a reference librarian
6. browsing library shelves
7. using indexes or abstracts
8. reading reviews or abstracts

E. To what degree can you determine (on your own) the value or relevance of a source to your research task?

F. When unable to determine the value or relevance of a source on your own, indicate the degree you normally seek

1. no assistance to evaluate,
2. reference librarian assistance,
3. class professor assistance, or
4. friend/colleague assistance

G. How useful would the following methods of finding information be for your needs?

1. library how-to-handouts
2. self-paced library workbook exercises

3. in-class visiting lecturer
4. in-library conducted instruction
5. information from classroom professor
6. computer help screens
7. help as needed from a reference librarian

Hypotheses Based on Research Questions

The following multi-part null hypotheses based on the research questions were used in the study:

I. There are no significant differences in the responses of The Citadel faculty members in the social sciences, the humanities, and the sciences in this study on:
   A. How important to you are purchases in the following areas when budgets are cut?
      1. periodicals/journals collections
      2. media (audio/videorecordings)
      3. reference collection (indexes, abstracts, and databases
      4. main collection (circulating books)
   B. To what degree do you usually encourage students to use library resources for assignments below?
      1. critical thought paper
      2. research paper or prospectus
      3. oral report
      4. book or journal article review
      5. gathering or interpreting data

II. There are no significant differences in the responses of The Citadel student majors in the social sciences, the humanities, and the sciences in the study on library use and value?

A. From the checklist below of reasons for library us indicate how frequently these reasons apply to you.
   1. to checkout or use books
   2. to use periodicals
   3. to use print or computer indexes
   4. to study my own textbooks
   5. for recreational reading
   6. to seek research assistance
   7. for interlibrary loan borrowing

B. During Fall, 1991, how valuable have library resources and services been for completing the following assignments?
   1. critical thought paper
   2. research paper or prospectus
   3. oral report
   4. book or journal article review
   5. gathering or interpreting data

C. For your major field of study, circle the adequacy of service assistance and library holdings listed.
   1. reference librarian
   2. microfilm/microfiche
   3. catalog (ATLAS)
   4. reserves/circulation
   5. interlibrary loan
   6. periodicals/journals

    7. books.

III. There are no significant differences in the responses of The Citadel lower-level undergraduate students (freshmen and sophomores), upper-level undergraduate students (juniors and seniors), and graduate students in this study on information needs assessment and library use instruction:

- A. Acquiring information is important to my coursework and/job performance.
- B. In gathering information in the library, indicate the degree you "found what you needed" because of your
    1. research ability,
    2. browsing or luck, or
    3. urgent need to find the information.
- C. When unable to find what I need in the library, I normally conclude that the library does not have the information.
- D. How important to you are the following methods in gathering information for courses?
    1. reading journals in your field
    2. reading journals in other fields
    3. searching library catalogs
    4. locating citations in sources
    5. consulting a reference librarian
    6. browsing library shelves
    7. using indexes or abstracts

8. reading reviews or abstracts?

E. To what degree can you determine (on your own) the value or relevance of a source to your research task?

F. When unable to determine the value or relevance of a source on your own, indicate the degree you normally seek
   1. no assistance to evaluate,
   2. reference librarian assistance,
   3. class professor assistance, or
   4. friend/colleague assistance.

G. How useful would the following methods of finding information be for your needs?
   1. library how-to handouts
   2. self-paced library workbook exercises
   3. in-class visiting lecturer
   4. in-library conducted instruction
   5. information from classroom professor
   6. computer help screens
   7. help as needed from a reference librarian

Assumptions

This investigation was based on the following assumptions:

1. Responses given in the questionnaires accurately reflect the attitudes of the subjects in the study.
2. Differences of opinion for scaled data statements are equal intervals.

3. Basic library instruction use (orientation) normally given students is not adequate to ensure lifelong learning.

4. A 62% student library user and a 66% faculty response level constitutes a valid sample of The Citadel faculty library user (Sudman & Bradburn, 1984).

Delimitations

This investigation had the following delimitations:

1. The major limitation of the study was that it analyzes one case at one period of time. As such, The Citadel needs assessment may not be applicable to other institutions. Also, as The Citadel's needs change, the study will become outdated.

2. Data given were generated from self-reported questionnaires, The Citadel college records, and standard published sources.

3. The questionnaires for the needs assessment survey were designed for a specific population at The Citadel. Administering the survey was subject to policy and controls of the College.

4. All people or students who enter the library are not users. Although the library offers limited service to the local community, including area high schools and colleges, the scope of this inquiry was limited to The Citadel faculty members and students.

5. Freshman use of the library was limited to less than one semester. Therefore, freshman may or may not have responded to requests such as Citadel cumulative grade point average

(GPA).

Definition of Terms

1. Bibliographic instruction: "An information service to a group, which is designed to teach library users to locate information efficiently. The essential goals of this process are an understanding of the library's system of organization and the ability to use selected reference materials." (Young, 1983, p. 22). See also library use instruction.

2. Course-integrated bibliographic instruction: "Any bibliographic instruction which is designed as part of course objectives. The instruction is viewed as essential to knowledge of the subject and therefore to successful completion of the course" (Young, 1983, p. 62).

3. Course-related bibliographic instruction: "Any bibliographic instruction designed to provide students in a given course with the skills in the use of the library that are necessary to meet the course objectives" (Young, 1983, p. 62).

4. Library instruction: See library use instruction (presentation).

5. Information literacy: "To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (American Library Association, Presidential Committee on Literacy, 1989, p. 1).

6. Library orientation: "This is the introduction of the library building itself. A few resources such as the card

catalog [online catalog] and some basic reference materials may be introduced" (Rice, p. 5).

7. Library use instruction (presentation): "An information service to a group designed to introduce potential library users to the facilities, organization, and services of a particular library. Synonymous with library orientation. Distinct from bibliographic instruction" (Young, 1983, p. 132).

8. Self-paced (instruction) library tour: "A form of instruction which permits the learner to proceed toward objectives at a pace which is self-determined" (Young, 1983, p. 202).

9. User education: "A term which encompasses all types of activities designed to teach users about library services, facilities, and organization, library resources, and search strategy. It includes instruction in the use of one or more reference sources as part of reference transactions, library use presentation, and bibliographic instruction" (Young, 1983, p. 237). See also bibliographic instruction.

Summary

A primary step toward establishing the library's role in meeting user information needs in an integrated online information environment is a needs assessment of present user information needs/use and awareness of services, especially user education. As The Citadel Daniel Library faced the developing electronic information environment of the 1980s, training strategies of user education were modified to incorporate the use of emerging technologies such as the online catalog and end-user bibliographic databases. For the transfer of information, technologies such as CD-ROMs, facsimile, and locally mounted databases were implemented as increased computing power permitted.

Through surveying the Daniel Library users' perception of information needs and information-seeking skills, the library staff sought to promote life-long learning. Planning for library responsibilities in educating an information-literate graduate would be accomplished by promoting reconceptualizing the library's role as a teaching library, supported throughout the college curriculum.

If a needs study shows that a user education for information literacy program was acceptable to The Citadel Library user and academic community, it would be reasonable to conclude that this kind of program may be applicable for other similar college library instruction programs.

Chapter II

Review of the Literature

Introduction

As technology and strategies for innovation grow more closely integrated, ". . . it is often technology that is the driving variable behind major industrial change" (Burgelman & Maidique, 1988, p. 1). Developing technologies to automate library circulations, cataloging, and serials control have driven colleges and universities to major restructuring of libraries and computer centers for the storage, retrieval and integration of information for campus communities (Dougherty, 1987; Molholt, 1985; Morris, 1989; Van Houweling, 1987). Moreover, to redefine the library's role on campus, Shill (1987) encouraged librarians to adopt information literacy as a strategic goal in defining the library's role on campus:

> First, it will enhance campus perceptions of the library as a permanent, indispensable resource whose mission is to provide access to INFORMATION and KNOWLEDGE in any format. Second, by focusing upon lifelong information competencies as an instructional goal, the library will demonstrate a clear capacity for useful adaptation to environmental change. Third and most important, the library will gain visibility on campus by proving its effectiveness in providing access to information and may, as a result, command a larger share of institutional resources" (p. 449).

Strategic management stresses the importance of long-range assessment as part of the planning process. Additionally, SACS (Southern Association of Colleges and Schools, 1991) criteria support planning and the concept of information literacy by mandating that educational support services like

> The library must provide students with opportunities to learn how to access information in a variety of formats so that they can continue life-long learning. Librarians must work cooperatively with the teaching faculty in assisting them to use resource materials effectively. (p. 32)

Crucial to assessment and long-range planning for integrating library use and user education is the identification of information needs. Before determining a target group or groups for user education, Beaubien, Hogan and George (1982) recommended a situation analysis of factors not subject to change, including ". . . society, community, institution, library, staff and user populations" (p. 9). Beaubien et al. (1982, p. 27) then suggested four ways of determining the needs of the target group: 1) observing from the reference desk; 2) looking at college catalogs and syllabi; 3) direct opinion survey; and 4) direct testing.

Libraries and the Survey Method

Because the opinion survey method was an integral part of this dissertation investigation, the historical significance of this research strategy to libraries was examined. F. William Summers (1987) reported the library survey as moving toward the planning process in the 1930s. Other library authorities (Lyle, 1967; Tauber, 1964; and Wilson, 1947) have labeled the survey as the popular method of research for both public and academic libraries. Tauber (1964) listed the benefits of surveys to academic libraries with a distillation of Louis Round Wilson's 1947 article:

> (1) opening up channels of information concerning the library, (2) orientation of the administration in the purposes of the library and its role in education and research, (3) codification of a library policy, (4) increase in library support, (5) solving of specific problems, and (6) stimulation of the library staff (p. 27).

Baker and Lancaster (1991) noted that the term "library survey," used in Lancaster's 1977 edition of The Measurement and Evaluation of Library Services to discuss library use studies, was imprecise based on surveys they described in their current text. However, in their 1991 edition, Baker and Lancaster believed that the term was ". . . most often applied to a study that surveys the population served by a library to determine how the library is used and with what degree of success. It is a type of 'use' or 'user' study" (p. 369).

In 1954, Patricia Knapp (1959) collected data in a dissertation study of Knox College in Galesburg, Illinois that investigated what the library contributed to the education of the college student at Knox College. According to Knapp, the most important finding was that

> . . . the course rather than the student is the factor which determines the contribution of the library to the college program. Understanding of the role of the library in the college must be sought through exploration of the relationship between the course and the user (p. 30).

Writing in 1958 and summarizing the findings of her dissertation study, Knapp illustrated the need for faculty and librarian cooperation in the development of course-related bibliographic instruction in the learning process:

> Most college instructors, however much value they set upon problem-solving skill as an objective of liberal arts education, do not think of the library as an instrument to be used in the solution of problems. They think of it as a place to get books. And perhaps too many librarians, familiar as they are with the complexity of the organization they maintain, think the library functions to its fullest capacity when it merely supplies books (p. 833).

Following the Knox College study, Patricia Knapp used her belief in library skills for all students in developing the Monteith College Library Project, beginning in 1959. In the Monteith project, instruction was given ". . . in the context of a course, at a time when it was needed" (Miller, 1976, p. 10).

Kerhoeven (1990) reported a retrenchment, since the early 1970s, from the traditional means of conducting user surveys where the researcher queried users about interaction with libraries to two variants of the new phenomenological approaches ". . . largely developed out of communications theory by Brenda Dervin and colleagues. . ." (p. 392) in user surveys where

> . . . rather, than focusing on the user-system interaction in terms of the researcher's viewpoint, the focus is on the situation which prompts an information need from the viewpoint of a person who may or may not be a user of libraries and information systems, (Kerhoeven p. 392).

Lancaster (1977) stressed the importance of a well-conducted survey to the evaluation of library services if the survey attempted ". . . to assess the degree to which library services meet the needs of the community served" (p. 309). For evaluating an institution's performance in educating its product, Powell (1988) suggested an approach ". . . based on user data such as satisfaction" (p. 34). Through user-oriented measures Powell believed a needs assessment of user information needs and user education ". . . takes cognizance of the benefits of using performances measures and user studies separately, integrates the two techniques, and, it is hoped, produces an even better method for evaluating the performance of libraries" (p. 34).

Assessment of Library Use and User Education

Busha and Harter (1980) outlined the factors of librarian responsibility and library effectiveness in the relationship between library use studies and assessing user information needs in expanding information services and resources to determine:

> . . . the choice and suitability of library materials; the nature of library collections in relation to needs of clientele; the use and nonuse of library materials and services; the degree of awareness about library collections and services among clientele . . .; the efficiency with which information in libraries is stored, retrieved, and utilized; and user satisfaction or dissatisfaction with libraries (p. 154-155).

"Needs assessment" or "needs analysis" has been a management tool popular in education since the early 1960s (Stufflebeam, McCormick, Brinkerhoff & Nelson, 1985) for the measurement of gaps between current and desired outcomes (Kaufman, 1972; Newhouse, 1990). Newhouse (1990) maintained that needs assessment has more recently developed ". . . into a meaningful tool for diagnosing, prescribing, and evaluating library conditions" (p. 33). Hannabuss (1987) challenged librarians to do a needs analysis of the community because making a jump into the user's status was necessary for there to be an ". . . effective information exchange" (p. 122).

In the early 1970s, using a University of Colorado Libraries questionnaire, "Assessment of Student Needs in Knowing How to Use Libraries," John Lubans (1974) justified the needs assessment for determining ". . . what students expect and need and how they see the library is an important step toward understanding students better, and as a result providing more effective informational and educational services" (p. 236). The Lubans (1972; Lubans, 1974) study, conducted and reported under a Council of Library Resources Fellowship grant in 1971-1972, was randomly distributed in the Student Union at the University of Colorado. Lubans (1972) reported a 65 percent (375/576) response rate.

Based on response rate (112/375) and the reported use "more than once per week" (37 percent), juniors measured the greatest use and interest in library use during the undergraduate years (Lubans, 1972), followed closely by seniors. In response to the query, "Knowing how to use the library is overrated. You can get along without instruction in library use," 21 percent answered "agree" and 58 percent "disagree," while the remainder responded "neutral" or "don't know" (Lubans, 1972, p. 15). Lubans (1974) wrote that the positive responses to queries on the value of specified library resources to areas of study suggested ". . . we are on firm ground in providing library-use instruction programs that attempt to endow students with these skills" (p. 405).

In a dissertation study, "An Analysis of Library Services at the University of the District of Columbia as

Perceived by Administrators, Faculty Members, and Students," Varnado (1981) surveyed faculty members, students, and administrators to examine the role of library services in meeting the educational needs. The Varnado study collected data in four major categories on specific items of need: comfort, information, convenience, and cooperation. Analysis of variance was computed on each item to compare the perceptions of the three groups. In the infomational needs category, Varnado included 14 questions on the adequacy of library service or holdings including such items as journals, reference, and interlibrary loans. For the adequacy of journals, Varnado found that 85 percent of the faculty members responded "agree" or "strongly agree," while 66.5 percent of the students responded to the following item: "The collection of journals and magazines cover the various disciplines." Two of Varnado's conclusions from the "needs assessment" were

> 1) Faculty members who responded . . . were dissatisfied with the services performed by the UDC [University of the District of Columbia] Library due to the inability of the library to support the curriculum needs of the students; [and] 2) Due to numerous "no opinion" responses, many of the students, faculty members and administrators may be unaware of many of the services performed at the UDC Library (p. 180).

Based on a study of user library awareness, use, and needs assessment at the University of Wisconsin-Stout's

Library Learning Center, John Jax (1984) reported, in part, ". . . that most students have a keen awareness, use the facilities, service and resources, and place a high value on what is offered" (p. 10). Jax (1984) found that 59 percent (n = 406) of respondents used the library two or more times weekly. Mean use was twice weekly and .7 percent reported they "never use" the library. Fifty-five percent of student respondents answered "no" to additional instruction in library use. Jax also found that 77 percent of faculty respondents reported they encouraged students to use the library and that 77% of the student respondents said their teachers encouraged use of the library. Thus, for further bibliographic instruction research, Jax (1984) recommended addressing computer literacy and conducting further research on student needs.

Southwick (1985) used a systems approach to develop, implement, and evaluate an instructional model for integrating library instruction into the Ricks College genealogy curriculum. According to Southwick, the model's weakness was search strategy, but "The strength of the model appears to be in the design, with students being actively involved in meaningful library research over a period of time" (p. 107). Through a needs assessment opinionnaire, the Southwick study showed that ". . . when appropriate methods of instruction are used, library skills can be integrated effectively into classroom instruction" (p. 6).

In three studies at a mid-Atlantic university, two

English professors, Leighton and Markman (1991), surveyed freshmen enrolled in English composition classes ". . . to determine their attitudes toward two different methods of bibliographic instruction: [1] the lecture-discussion practicum and [2] the workbook" (Markman and Leighton, 1987, p. 126). In analysis of the question, "Did the session [discussion-practicum] provide you with search strategies for your own research project?" (Markman & Leighton, 1987), 59 percent (n = 497) responded "yes" and 21 percent responded "no," while 73 percent of respondents thought the discussion practicum should be continued. In contrast, Markman and Leighton (1987) concluded that

> Because nearly one-third of the students polled perceived little or no benefit from the workbook, and because it elicited hostility from over one-fourth of the sample, serious questions are raised about the continued use of such a popular method of library instruction. Library research in the composition course should not ADD to the anxiety students may already feel about writing about the research process (p. 133).

In a 1987 follow-up study to the two previous studies in 1985 an 1986, Leighton and Markman (1991) surveyed 265 students enrolled in required freshman English composition courses with a term paper. Because of data from the previous two studies, another independent study conducted by the library staff and ". . . labor and cost considerations which discouraged the discussion-practicum--a new BI book was prepared by a member of the library staff who sought the recommendations of several composition instructors" (Leighton & Markman, 1991, p. 36). In this third approach, a BI manual approach, Leighton and Markman sought ". . . to measure attitudes toward the new manual and toward its usefulness in each student's research project" (p. 37).

With the new BI manual study findings reflecting more positive attitudes than the workbook study, Leighton and Markman (1991) concluded that "Library research, and the writing it reflects, frequently produce anxiety among college students" (p. 38). Additionally, Leighton and Markman concluded that

> . . . planning and implementing BI methods should include active cooperation between faculty and library staff. This partnership should be one that strives to meet the needs of that most important third partner--and beneficiary of the whole BI endeavor--the student (p. 38).

Claiming that academic library staffs have often designed and implemented library instructional programs with little or no input from library users, Lawton (1989) began a three-year needs assessment of library instruction for Gallaudet University. First-year results provided guidelines for instructional direction, and Lawton wrote that plans included a follow-up needs assessment.

Information Need and User Education

In "Information and Information Needs," Faibisoff and

Ely (1976) established their conceptual framework of information with the following question/definition:

> What is information? It is that which reduces uncertainty. It is that which assists in decision-making. It may exist as data in books, computers, people, files and thousands of other sources. These sources have to be considered simply as raw data until they are used to resolve uncertainties (p. 2).

When sources are used to resolve uncertainties as in an information need (Faibisoff & Ely, 1976), Losee (1990) wrote that the decision maker perceived ". . . the risk associated with making a given decision would be brought to a lower level if information were received" (p. 238). Losee also noted that training in the use of stored information channels, whether in brain, book, or computer, ". . . may reduce anxiety and increase the expected productivity when using these channels. Bibliographic instruction is used in libraries for this purpose, acquainting students with different access mechanisms and tools to increase the students' research productivity" (p. 239).

Library use also depends upon recognized need for information. As Branscomb (1940) found, the need may not exist when students do not use the library's books. However, using the concept of library use instruction, may be the appropriate channel for communicating information needed whatever the quantitative signals transferred in the application of information technology and information theory.

According to Roszak (1986), a 1948 paper, "A Mathematical Theory of Communication," by Claude Shannon of Bell Laboratories, established the discipline of "information theory" by changing its common usage from ". . . a purely quantitative measure of communicative exchanges, especially as these take place through some mechanical channel which requires that message to be encoded and then decoded, say, into electronic impulses" (p. 11). Commenting on the new information theory, Warren Weaver (1949) described

> The concept of information developed in this theory at first seems disappointing and bizarre--disappointing because it has nothing to do with meaning, and bizarre because it deals not with a single message but rather with the statistical character of a whole ensemble of messages . . . (p. 14).

For example, in writing on whether electronic databases contained information or knowledge, Pfaffenberger (1989), claimed that these databases did ". . . represent a valuable social resource in the absence of skilled decoders, and such persons are fewer in number with each passing year of educational deterioration in North America" (p. 55). In outlining the paradigms desirable for addressing the revolutionary impacts for shaping information processing technology for user information literacy, Phillips (1990) made a case ". . . for an interdisciplinary, interparadigmatic approach that involves recognizing information as the basis for symbolic action, and symbolic action as the basic unit of cultural production" (p. 43).

According to Bhola (1987), the claim by some social analysts that electronic media had made print literacy obsolete had not happened. Instead, because functional literacy was related to the culture of a society, requirements had changed with complexities (Bhola, 1984). Traditional literacy, the ability to "code and decode" messages, has remained the "literacy of alphabets" for most Third World countries but the "literacy of marks" was a projected necessity for industrialized and electronic societies (Bhola, 1984; Bhola, 1987). Bhola (1984) defined this "literacy of marks" concept as:

> . . . the ability of a person smoothly and effortlessly to code and decode (with understanding) a living and growing system of marks (both linear and non-linear to include words, numbers, notations, schemata, and diagramatic representations, inscribed on paper or other two-dimensional surfaces--cloth, celluloid, or the screen of a computer terminal) all of which become part of the visual language of the people . . . (p. 260).

Dervin and Nilan (1986) conducted the information needs and uses literature review for the 1986 ARIST (Annual Review of Information Science and Technology). In the review, Dervin and Nilan covered the paradigm shift in information needs and uses research from the "traditional" to the "alternative." The "traditional" paradigm

> . . . is one in which information is seen as objective

> and users are seen as input-output processors of information. It is one that searches for trans-situational propositions about the nature of the use of information systems. It does this by focusing on externally observable dimensions of behavior and events (p. 16).

The "alternative" is one in which the paradigm ". . . posits information as something constructed by human beings. It sees users as beings who are constantly constructing, as beings who are free (within system constraints) to create from systems and situations whatever they choose" (p. 16).

Covering from 1986-1989, Hewins (1990) updated the 1986 ARIST information needs and uses research literature review in the 1990 ARIST. Hewins concluded that Dervin and Nilan's premise of changing paradigms was valid and that the 1990 ARIST literature review revealed research on new approaches based on cognitive, as well as sociological characteristics. These characteristics included ". . . categorization techniques, long-and short-term memory, learning styles, motivation, personality types, and semantic factors such as vocabulary selection and selection of search commands" (p. 164). Also, because only the user can determine what prompted his/her information seeking behavior, Hewins claimed that librarians ". . . must determine how the acquisition of information or knowledge changes the user's perception of his/her world and how it changes behavior as a result if we are to design dynamic, adaptive systems" (p. 165).

User Education and Information Literacy

According to Beaubien et al. (1982), the term library orientation referred to all types of user education until the early 1970s when librarians distinguished between library orientation and BI. Orientation to library facilities, services, and procedures has usually been the tour, including variations on the printed, computer-assisted, audio, or video self-guided tour as well as the traditional librarian-conducted guided tour (Renford & Hendrickson, 1980). Whatever the instruction offered, BI librarians have assumed orientation to be a foundation for additional methods such as course-related instruction, course-integrated instruction, computer-assisted instruction, and the credit instruction course (Beaubien et al., 1982; Renford & Hendrickson, 1980).

According to Renford and Hendrickson, (1980), the separate credit bibliographic course has been overshadowed by the course-related course, but the method remains viable. Renford and Hendrickson compared offering a separate credit library instruction course to the required basic composition course: "Both courses also require reinforcement from other departments if they are to be effective" (p. 125). In describing Plattsburgh State's (N. Y.) general education requirement for a credit library skills course, Kimmage (1987) wrote that general education requirements are resented by many students because they take time needed in major areas of study. Kimmage reported that 71 percent of Plattsburgh students responded positively on the value of required

LIB101. Additionally, Kimmage reported that the value of library skills was ". . . not as evident to undergraduates students as is the value of composition skills" (p. 10).

Currently, Arp and Wilson (1989) identified five major structures for BI based on the degree of cooperation among librarians, faculty members, and college or university administrators: ". . . orientation; course-related instruction; course-integrated instruction; team teaching; and separate courses" (p. 33). Orientation required no institutional cooperation; course-related, course integrated, and team teaching required departmental cooperation; and separate courses required college administration cooperation (Arp & Wilson, 1989).

In a paper delivered at the 1976 Southeastern Library Association Conference, Thomas Kirk (1977) itemized seven steps of development and implementation through which the bibliographic instruction concept had passed:

> 1. There are pronouncements in the literature, both by librarians and non-librarians, concerned about books and their use;
> 2. A few programs in scattered libraries develop;
> 3. An increased awareness of the value of library instruction on the part of librarians, faculty, and/or patrons becomes evident and research into users' needs demonstrates the need for instruction;
> 4. There is wide spread incorporation into the program of most or many libraries;

> 5. Library instruction becomes an established library service;
> 6. There is a decline in the effectiveness of these programs;
> 7. There is rejuvenation in interest which is accompanied by a redefining of the problems and their solutions (p. 15).

Hogan (1980) wrote that the rebirth of the bibliographic instruction movement in the late 1960s started with the establishment IN 1967 of the American Library Association standing committee on the Instruction in the Use of Libraries. In this rejuvenation in the role of bibliographic instruction movement, Kirk (1977) and other authorities (Dougherty, 1976; Young, 1980) cautioned new practitioners of the period that bibliographic instruction was not new. Despite the interest in bibliographic instruction, librarians were also skeptical of the need for BI (Benson, 1979; Eadie, 1990 Katz, 1992; Shinebourne, 1980). Furthermore, after outlining five reasons advocates have for teaching BI, Katz (1992) continued opposition to bibliographic instruction in his latest edition of Introduction to Reference Work (1992) with a chapter on BI labeled, "Bibliographical Instruction," in which he stated that

> . . . there are some, including this author, who question the worth of much bibliographical instruction. Users should be given an option. The librarian might ask, 'Do you prefer that I gather the information?' or

> 'Should I show you how to find what you need?' or Shall we work together to find the data?' (p. 147).

Although dated, Shinebourne (1980) questioned the value of active services such as user instruction as a route to meeting user needs. Shinebourne also claimed that broad generalizations about user needs were not relevant to meeting an individual user's need at a particular time. Instead, of being diverted by new technology, user needs, and electronic formats, librarians should

> . . . re-examine the process of record making; to investigate more carefully the features of texts that contribute to their pertinence being perceived. We need to investigate whether there are characteristics of texts analogous to the physical characteristics indexed in descriptive cataloguing, whose indexing would permit users more ably to select texts which will meet their needs (Shinebourne, 1980, p. 138).

The need for research in bibliographic instruction, in particular, and librarianship, generally, is noted throughout the literature (Smalley, 1977; Stoffle & Bernero, 1987; Young, 1980) but in 1987, Stoffle and Bernero noted little advances had been made. Early in the renewed interest in bibliographic instruction, BI librarians (Harris, 1980) recognized the difficulty in defining information needs. Harris wrote that user studies were shifting

> . . . away from a concept based upon assumptions of librarians about the inherent goodness of information

> sources (of the kind found in libraries) that users OUGHT to be using, to more sociological concepts of the needs attaching to roles or tasks, the uses to which information is put, the outcomes of information use or non-use, and so on (p. 12).

Evan Farber (1974) advocated Patricia Knapp's inclusion of library instruction in classes. Farber also recognized that unlike traditional disciplines in the undergraduate curriculum educational theory for BI had not been established. Since the mid-1970s, BI librarians (Aluri & Reichel, 1984; Frick, 1991; Kobelski & Reichel, 1981; Lindgren, 1982; Mellon & Pagles, 1987; 1987; Smalley, 1977) have discussed and researched learning theory and conceptual frameworks and the teaching of bibliographic instruction in various subjects. For example, Mellon and Pagles (1987) reported that learning theory is not the complete answer; but that learning how people learn differently will enable BI librarians to design programs to meet various modes of learning. Aluri and Reichel (1984) stressed that librarians needed to employ both behavioral learning (skills) and cognitive theory (concepts) in BI. To illustrate the value of cognitive learning theory to bibliographic instruction, Aluri and Reichel used the well known index, Readers Guide to Periodical Literature to establish a relationship to students'existing knowledge:

> . . . I was teaching a freshman class one day and realized that the students were less than enthralled as

> I talked about the elements of an entry in a periodical index. Suddenly inspiration hit, and I told the students this was the exact information they needed for their bibliographies. The class really became alert and asked many questions because of relating information to something they had heard about and needed to know more about (p. 24).

Lippincott (1987) placed emphasis on teaching concepts and structure of tools such as databases and information systems in end user searching as ". . . a component of an 'information literacy' program . . . which will enable students to come to terms with the world of information" (p. 183). Citing Jerome Bruner's (1960) theory of instruction, Lippincott (1987) felt that if transfer of knowledge for use in other systems was important, it was important to build a curriculum around concepts:

> This kind of nonspecific transfer, the transfer of principles and attitudes that can be used as a basis for dealing with subsequent problems of the idea originally mastered is dependent on the mastery of the structure of the subject matter . . . (p. 184).

With the merger of library literacy, computer literacy, and user education into one of information literacy, reference librarians have also added search logic as a major component of bibliographic instruction (Crane, 1991).
In dealing with the merger of user education and electronic formats such as locally mounted databases and optical discs,

Mellon (1987) reported that Bibliographic Instructiom: Second Generation contributors opposed to changing the term "bibliographic instruction" to a name encompassing concepts such as "information," "search," and "management" to reflect technological changes pointed out that technology was

> . . . merely another form in which to store and retrieve information just as were the clay tablets of Ashurbanipal or the various microprint technologies introduced several decades ago. Search, retrieval, and use of information, . . ., maintained certain basic and teachable concepts regardless of the form in which the information appeared (p. 189).

To demonstrate Mellon's point, MacDonald (1990) recommended a user-centered approach in teaching optical discs because training in CD-ROMs ". . . should serve the training program, not control it" (p. 97).

In "Literacy: Concepts of Literacy in a Computer Age," Kwasnik (1990) outlined a contemporary view of information literacy as a commodity for success but more than reading or writing where

> . . . the integration of 'more than' depends on the intellectual framework and intention of the author. These approaches can be roughly organized into four broad (and, of course, overlapping) categories:
>
> 1. Literacy as a PRIMARY ACADEMIC SKILL
> 2. Literacy as a COGNITIVE and DEVELOPMENTAL factor

3. Literacy as inextricably embedded in a social context
4. Literacy as an ABSTRACT CONCEPT (p. 129).

Just as library orientation was a step toward bibliographic instruction, BI is a step toward information literacy (Rader, 1990). In incorporating the latest technologies, Rader noted that librarians and teachers should combine the concepts of bibliographic instruction and information literacy to prepare an information-literate graduate because

> The question is not that should it be one or the other, but rather, how can we use our Bibliographic Instruction expertise to build strong information literacy programs for the nation by building coalitions with other educational groups and agencies. Our survival depends on it (p. 20).

United States Air Force Academy history professor, Colonel Carl W. Reddel (1983), wrote that Academy students were like most students when ". . . they fail to see the full potential of the information available to them and generally are not inclined to learn the techniques necessary to exploit it for personal or professional gain" (p. 56). Reddel also explained that all academy history majors take a required historical methods course and that students in some courses work with a specialist on informational problems by looking at library resources through the eyes of that specialist. In addressing how information technology can enhance learning in the humanities, Reddel wrote:

> The essential substantive challenge will be to minimize the gap which already exists between data and information on the one hand, and wisdom on the other, or at least to restrain the growth of this gap. Perhaps that is the special challenge for the humanities throughout undergraduate education in the emerging, computer-based, post-industrial society that is the United States (p. 60).

Breivik and Gee (1989) have suggested that librarians extend user education beyond library literacy and computer literacy to the next logical step: information literacy. According to Kuhlthau (1990), "information literacy" was first used in 1974 when the National Commission on Libraries and Information Science (NCLIS) called for achieving information literacy by 1984. Breivik and Shaw (1989) cited a 1976 speech by Lee G. Burchinal, Director for the Division of Science Information at the National Science Foundation, as "One of the earliest calls for the redefinition of literacy to include information gathering . . ." (p. 17).

Non-librarians such as Compaine (1984), in a Harvard University report, and information management consultant, Forest Horton, have called for a "new literacy." Horton (1983) juxtaposed Abraham H. Maslow's hierarchy of needs (biological-physical, security, social, ego, and self-actualization) with a hierarchy of human information needs (coping, helping, enlightening, enriching, and edifying).

Demo (1986) credited a bibliographic instruction librarian, Patricia Senn Breivik, with ". . . one of the most detailed attempts at defining information literacy" (p. 13). In reporting early work in information literacy, Breivik (1985) described a working definition of information literacy as evolving from the library instruction program at Auraria Library, the University of Denver, Colorado and developed by Martin Tessmer:

> General definition: Information literacy is the ability to effectively access and evaluate information for a given need. (Developed by Martin Tessmer, 1985)"
>
> Characteristics of information literacy:
>
> - an integrated set of skills and knowledge
>   - -skills (research strategy, evaluation)
>   - -knowledge of tools and resources
> - developed through acquisition of attitudes
>   - -persistence
>   - -attention to detail
>   - -caution in accepting printed word and single sources
> - time and labor intensive
> - need-driven (a problem solving activity)
> - distinct but relevant to literacy and computer literacy
>
> Information literacy is not:
>
> - (only) knowledge of resources
> - library dependent (as a sole source)

- information finding (also understanding and evaluating) (Breivik, 1985, p. 723)

As chair of the 1987 American Library Association (ALA) Presidential Committee on Information Literacy report, Breivik, along with the committee, sought to achieve the first part of its tripartite charge ". . . to define information literacy within the higher literacies and its importance to student performance, lifelong learning, and active citizenship. . ." (American Library Association, Presidential Committee on Literacy, 1989, p. 15). The Committee defined the concept of information literacy as: "To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (p. 1). According to the Committee, producing an information-literate citizenry required that education systems ". . . appreciate and integrate the concept of information literacy into their learning programs and that they play a leadership role in equipping individuals and institutions to take advantage of the opportunities inherent within the information society" (p. 1).

In "Information Literacy: Just Another Buzzword?," Varlejs (1991) questioned if this latest term for BI was merely a buzzword or ". . . an apt expression of the evolving role of the information profession" (p. 1). Varlejs interpreted the ALA literacy report objective as one of having students learn actively through information use, gathering and analysis, ". . . rather than passively through texts and workbooks" (p. 1). Kuhlthau (1990) offered a suitable definition for integrating bibliographic instruction skills and computer skills for meeting information literacy requirements: "Defined as comprising library skills and computer literacy, information literacy requires skills necessary for the interpretation and use of information" (p. 14).

In its "Model Statement of Objectives for Academic Bibliographic Instruction," the Association of College and Research Libraries/Bibliographic Instruction Section (1987) task force on revising the "Model Statement" supported the conceptual approach for user education. The following four areas of general concern and the accompanying general objectives were adapted from the statement:

1. How information is identified and defined.
   GENERAL OBJECTIVE: The user understands how information is defined by experts, and recognizes how that knowledge can help determine the direction of his/her search for specific information.
2. How information sources are structured.
   GENERAL OBJECTIVE: The user understands the importance of the organizational content, bibliographic structure, function, and the use of information sources.
3. How information sources are intellectually accessed by users.

GENERAL OBJECTIVE: The user can identify useful information from informations sources or information systems.

4. How information sources are physically organized and accessed.

   GENERAL OBJECTIVE: The user understands the way collections of information are physically organized and accessed (pp. 257-260).

In "Cornell University's Information Literacy Program," Olsen and Coons (1989) described the development of Cornell's information literacy program of the Albert R. Mann Library, the second largest of sixteen libraries in the land-grant university. According to Olsen and Coons, "The overall goal of the program is to educate and motivate students to become sophisticated in their awareness and abilities to use information and information technology" (p. 9). The program objectives to reach institution goals are taught in five courses over the sophomore, junior and senior years, while the freshman are intentionally left alone to adjust to the university environment (Olsen and Coons, 1989).

To promote the concept that library use instruction included critical thinking and evaluation (information literacy), McCormick (1983) cautioned librarians ". . . that students don't get the idea--especially from us--that FINDING information is the important thing, not what they DO with information" (p. 339). Location and interpretation skills create a broader view of information literacy for students:

"It is the teacher who sets formal tasks that generate the information needs, who determines explicit information needs, and who rewards the gathering, use and presentation of information" (Harris, 1980, p. 13).

Recommendations that librarians and classroom professors cooperate in educating college students to use the library have been advocated by librarians in their research and discussions (Bodi, 1988; Harris, 1980; Jacobson and Vallely, 1992; Knapp, 1959; Young, 1980). Jacobson and Vallely (1992) suggested that librarians co-author with faculty members BI articles in discipline-specific journals to ensure more acceptance of BI as an academic routine. Jacobson and Vallely scrutinized 18 faculty-authored BI articles found in nonlibrary journals during the 1980s ". . . to see if the librarian was treated as a fellow professional and involved in the process as a planner, a teacher, or, at the very least, a resource" (p. 361). Three of the 18 articles were positive and 11 of the 18 articles mentioned introducing students to library research but did not mention working with librarians, while "Four articles mention librarians only in passing . . ." (Jacobson & Vallely, 1992, p. 361).

In one of the 18 articles, "Emphasizing Library Research in Intro Business Course," Shirley Tucker (1989), a business professor, advocated the teaching of library skills in classroom assignments to become a successful business person, ". . . able to conduct research, synthesize findings, and organize results to correctly influence decisions that must be made" (p. 21). In an assignment listing basic business sources, Tucker advised department members to enlist library personnel for additional sources, but reminded them that the object of the assignment was to acquaint students with sources, not to answer specific questions. Joseph Laferriere (1987), a biology professor, author of another of the 18 articles admitted that ". . . many universities lack well-organized and widely-used mechanisms for familiarizing students with information retrieval systems" (p. 368). Laferriere advised colleagues to select species with a high frequency of citations in assignments for learning how to use Biological Abstracts and Science Citation Index.

While library instruction proponents guide students toward information literacy, Arp (1990) warned that "With information literacy we must recognize that we have an expected product--the information-literate individual--and that we will be expected to produce this product" (p. 49). Healy (1990) went further, asking that information professionals be concerned with ". . . teaching people not to settle for being information literate but rather to insist upon being an information intellectual" (p. 400).

Therefore, to produce this product--the information literate or information intellectual, Naito (1991) proposed an interdisciplinary program where the institutional objectives are graduates who ". . . will have the ability to understand what information is, when they need to access it, how to obtain it, and how to use it" (p. 293). Bodi (1988) argued that this interdisciplinary approach included BI across the curriculum ". . . as a strategy to encourage and reinforce the development of critical thinking" (p. 150). For example, in "Collaborating with Faculty in Teaching Critical Thinking: the Role of Librarians," Bodi (1992) reported collaborating with English, Biology, education and nursing faculty members in course-related library instruction and critical thinking at North Park College and Theological Seminary, Chicago, Illinois. To assess information sources in a critical manner, Bodi stressed the ". . . usefulness of book reviewing sources and the importance knowing the bias or point of view of a journal" (p. 74).

Fjallbrant and Malley (1984) cautioned that guiding students through the objectives of information literacy to "education for life" may fail because "The librarian's concept of the user's needs is not, however, necessarily the same as the actual needs" (p. 9). For instance, a survey of 2400 information seeking respondents by Chen and Hernon (1982) included libraries as one of thirteen providers consulted by subjects seeking information. In designating what the providers considered most helpful, respondents ranked libraries ninth. Furthermore, for the 17 percent of respondents who used the library to find information, the three most important considerations were accuracy, understandability, and time, while ". . . the convenience of library location, staff attitude, and quality of staff assistance were negligible factors (4.5% of the situations)"

(p. 87).

As editor of RQ's library literacy column, Mary Reichel (1990) suggested the concept of information literacy could bridge the gap between academic library use instruction and the literacy campaign of public libraries. Although not written as such, Farber (1990) wrote a rationale for changing the concepts of BI into one of information literacy for the current student as well as for the life-long learner:

> In many ways, our society is rapidly becoming--if, indeed, it's not already become--an information-based one, and in such a society success or failure will increasingly be measured in terms of one's ability to find, organize, and use information. We want our students to do better work, to become more independent learners. We want all members of our different clienteles to become full participants in our information-based society (p. 3).

Summary

This literature review revealed that colleges and universities have been surveying library users for planning since the 1930s. Recently, institutions have been adapting to changes in library use instruction and user information needs affected by technology and the information explosion. As Newhouse (1990) contended, needs assessment has been a recent library activity for the evaluation of library services.

Research by Knapp (1959) established the need for teaching library use and skills that were related to classroom need. Needs assessments and use studies by librarians (Jax, 1984; Lawton, 1989 Lubans, 1974; Powell, 1988; Southwick, 1985; Varnado, 1981) verified a continuing need to coordinate library use and classroom instruction to support student information needs.

The literature review also revealed the need to connect the concepts of user information need and library use instruction (Breivik & Gee, 1989; and Kuhlthau, 1990) as one of information literacy. Employing the concept of information literacy to educate a college graduate skilled in decoding the information received into knowledge (Losee, 1990; Phaffenberger, 1989), McCormick (1983) emphasized critical thinking in educating the library user.

Through its "Model Statement of Objectives for Academic Bibliographic Instruction," the Association of College and Research Libraries/Bibliographic Instruction Section (1987) supported information literacy for lifelong learning. Because our society is becoming an information-based one where success or failure will depend upon information use (Faber, 1990), and where user and librarian concepts of information needs will differ (Fjallbrant & Malley, 1984), a needs assessment is crucial for developing useful library programs.

Chapter III

Methods and Procedure

Design and Selection of the Population and Sample

The research strategy was devised to study The Citadel Library patron's use/needs of library services and user education. The study was based on the library use of survey research methods (Busha & Harter, 1980). The first step of the procedure was to design two questionnaire-based surveys (Appendices A and B) to assess Citadel faculty and student attitudes concerning library service, use, information needs, and user education.

The study population included full-and part-time faculty members (215), excluding deans. Military tactical officers attached to the college Reserved Officers Training Corps (ROTC) were included. Those who chose to participate (141) were the responding sample. The student study population (465) was a randomly selected 12.5 percent sample of the student body (1905 cadets and 1809 full-and part-time graduate and undergraduate day and evening students), selected by the college Information Resources Management (IRM) staff. IRM staff sorted students enrolled in Fall, 1991 by SSNs (social security numbers), sequentially numbering each SSN 1 through 8. A randomly selected number from 1 to 8 (2) was then used to select the sample. Because most Citadel graduate students are part-time, the student sample was chosen to represent the individual library user. This method yielded a larger number of part-time students as participants than selecting full-time equivalents.

The faculty questionnaire collected demographic information, as independent variables, about user status, sex, tenure, discipline, level of instruction taught, and years of Citadel service. Student user independent variables were collected for class, sex, academic status, cumulative grade point average (GPA), and major. The data were manipulated with the dependent variables for information use/needs and user education.

The study investigated three research questions. Three multi-part null hypotheses were developed from the research question for investigation.

Development of the Instrument

Questionnaire designs were adapted from various library user study models to fit the specific requirements for The Citadel Library. Participants were asked to respond to the questionnaire based on their awareness, use, and value of library services. Although reliability and validity of personal opinions of patrons are open to question, ". . . subjective evaluations of libraries are an often used tool in library surveys" (D'Elia & Walsh, 1985, p. 26). Because the instrument was designed specifically to determine only The Citadel faculty and student use/needs of library user services, including user education and information literacy, external validity was questionable.

To answer the research questions of the study, questionnaires were developed with advice from the doctoral committee and from selected Citadel faculty and student representatives. Six faculty colleagues were asked to review and critique the original faculty and student questionnaires based on objectives. The objectives of the faculty questionnaire were:

1) to identify changing information needs;
2) to assess library technology training needs;
3) to discover demands or preferences for resources, services, and technologies;
4) to determine perceptions of user instruction needs for students.

The objectives of the student questionnaire were:

1) to identify purposes of library use or no-use;
2) to ascertain frequency of use;
3) to learn user satisfaction with library services;
4) to discover attitudes about information needs;
5) to pinpoint preferred user education for meeting information literacy.

Pilot Study of the Proposed Survey Instrument

Beginning April 13, 1991, a pilot study of the student questionnaire was conducted. Twenty randomly selected students were chosen by the investigator and contacted in person or by telephone. The subjects were asked to participate in a pilot test of the student questionnaire. The students who agreed to participate were asked to complete, time, and date the first of two questionnaires. Within two weeks, the identical questionnaire was mailed to the same subjects for retaking. Eighteen of twenty participants completed and returned the student pilot survey.

Ten faculty members were randomly selected, contacted personally or by telephone, and asked to rate and critique each statement of the faculty questionnaire based on objectives provided with the questionnaire. Participants rated each statement (1 low to 5 high) for clarity and effectiveness. Nine of the ten faculty participants critiqued and returned the questionnaire.

Based on the pilot study response rate, findings from student responses and faculty critiques, both questionnaires were revised. After pilot data were analyzed and revisions made, the main survey was implemented in Fall, 1991.

Data Collection Methodology

On November 12, 1991, 465 student and 215 faculty questionnaires and cover letters were delivered through campus and/or U. S. Mail, including a self-addressed stamped return envelope as appropriate. On November 12 and 19, 1991, cadet students completed the questionnaire in two groups monitored by the investigator. Cadets not meeting the assigned monitored groups received mailed questionnaires.

Cover letters, endorsed by the Library Director and the college Graduate and Undergraduate Deans (Appendix C), described the purpose of the survey. The letters also assured participants that personal data generated for analysis would not be published. Questionnaires were numbered to protect identification of subject names and to provide follow-up. Faculty and non-cadet subjects were given ten days to respond.

Five of the student questionnaires (465) were undeliverable by the postal service. By November 29, 1991, 55 percent of faculty and 58 percent of student participants had completed and returned the questionnaires. Beginning 29 November 1991, follow-up for unreturned questionnaires was started by e-mail, postcard or telephone. By January 30, 1992, 142 (66 percent) faculty participants and 288 (62.6 percent) student participants had returned questionnaires.

According to Sudman and Bradburn (1984, p. 34), response cooperation rates for special populations ranged from 50 to 88 percent. Of the 142 faculty respondents, 65.6 percent (141 of 215) were usable (one questionnaire was returned with all identifying information blank or removed). Of the 287 student respondents, 61.7 percent (284/460) were usable (four questionnaires were returned blank).

In addition to library use/needs sought in the questionnaire, a designated week's (November 04-11, 1991) circulations records for each user class was collected from the library's integrated online library system (ATLAS). For the same designated week, in-house usage data was collected for comparison. Additional library and College statistical data from annual reports and College records were used as appropriate in background.

Treatment of the Data

After closure on the receipt of data, the following steps were taken:

1) Quantitative data were coded, verified, keypunched, reverified for entry and packet transferred to Nova VAX 8550, Nova University, Ft. Lauderdale, FL. The Statistical Package for Social Sciences (SPSS-X) was used to analyze data.

2) Faculty respondent data, excluding ROTC faculty and one respondent class (other), were arranged into three groups (college subject area clusters) for one-way analysis of variance (ANOVA) testing of Hypothesis I. The groups were: A) the social sciences (Business Administration, Education, Health and Physical Education, and Psychology); B) the humanities (English, History, Library, Modern Languages, and Political Science); and C) the sciences (Biology, Chemistry, Civil Engineering, Electrical Engineering, and Physics).

Student respondent data were arranged into the subject area clusters by major or area of study similar to faculty respondents, for one way ANOVA testing of Hypothesis II. Additionally, the student respondents were arranged into three groups by academic class standing for one way ANOVA testing of Hypothesis III. The groups were: A) lower-level undergraduates, B) upper-level undergraduates, and C) graduate students.

3) The instruments contained six response categories scaled 1 (low) to high (5) and 6 (no opinion, not applicable or not used). Responses to questions were analyzed for

number and percentage of agreement or disagreement among the respondents to each item of the statements. For testing for significant differences among group means, only the 1 to 5 fixed scaled responses were used. The findings were tested at alpha .05 for all hypotheses.

4) After one-way ANOVA for each statement item selected for hypothesis testing, the Scheffe procedure was used to test for post hoc comparisons after a significant F ratio (Huck, Cormier, & Bounds, 1974). The Scheffe procedure was used because it is often viewed the most conservative of multiple comparison procedures (Huck, Cormier & Bounds, 1974). Furthermore, Kennedy (1978) labeled the Scheffe procedure as "the most flexible method in that both pairwise and compound contrasts can be made, and these types of comparisons can be executed for both equal and unequal N situations" (p. 212).

5) Comments were reported in the narrative as associated to data. Tables indicating totals for similar responses were included for comments to specified statements and for general comments not solicited.

6) Means from one-way ANOVAs and Scheffe post hoc comparisons for hypotheses based on information from the questionnaires were included in figures and tables.

7) Data files (Appendix D) and operations files (Appendix E) for the two questionnaires were attached for later replication.

Summary

The methodology used in the study was delineated. The investigator presented the various procedures followed and performed in the study to design and select the population. The population was described. Faculty involvement in the development and critique of the student and faculty questionnaires to answer the research questions was outlined.

Development of the proposed student questionnaire as a pilot study to strengthen weaknesses of the instrument was described. The method of data collection and treatment of data were reviewed. Data files and operation files used for oneway ANOVAs were attached as appendices D and E, respectively.

Chapter IV

Results

Introduction

The purpose of this study was to assess patron use/needs of library holdings, services and user education. Specifically, the investigation evaluated library use through user opinions on information needs, user education, and value placed on library services.

Faculty and student survey instruments were separate questionnaires administered in the fall of the 1991-1992 academic year. The faculty and student questionnaires consisted of eighteen and twenty questions/statements, respectively. After demographic data questions, the first section of the faculty instrument included five statements related to library use and value, while the student instrument consisted of seven statements in the first section. The second section of both questionnaires presented seven statements on needs assessment and library use instruction.

To reflect the dual populations assessed in this study, this chapter is divided into two parts. Each part includes separate coverage of faculty and student questionnaires. The first part presents descriptive statistics (i.e., frequency, percent) about demographic characteristics of the sample. The descriptive item statements were on a scale (1-2 3-4-5-6; 1 low to 5 high and 6 not applicable, no opinion or not used). Later inferential analyses were scaled 1-2-3-4-5 responses (1 low to 5 high, excluding not applicable, no opinion, not used, and missing data).

The second part presents an analysis of the hypothesized findings related to the three multi-part null hypotheses that measure the attitude of respondents toward use/needs on library services and user education.

Presentation of the Data

On November 12, 1991, separate questionnaire instruments were mailed to a random sample of students (465) enrolled in Fall 1991 and to all full-time, adjunct, and Reserve Officer Training Corps faculty members (215), excluding deans. After an initial response of 54.88 percent (118) of faculty participants and 51.39 percent (269) of student participants, a follow-up was begun to improve response on November 30, 1991. Follow-up was carried out by electronic mail, telephone or postcard.

By January 20, 142 faculty participants (66 percent) had returned the questionnaire. Of the 142 responses, 141 were usable. One questionnaire was returned with all identifying information removed or blank. Five student questionnaires were not deliverable. Of the 460 remaining student questionnaires, 287 participants (61.7 percent) had returned the questionnaires by January 20, 1992. Of the 287 responses, 284 were usable. Three questionnaires were returned blank. The total number of usable returns was 141 (65.6 percent) of faculty members and 284 (61.7 percent) of students sent the questionnaires.

Faculty Questionnaire Data

Faculty respondents were asked to indicate their faculty status, gender, length of service at The Citadel, and department. Respondents (141) were 16.3 percent (23) female, and 81.6 percent (115) male. There were 2.1 percent (3) missing cases. Respondents were asked to record the number of years, including the current year, spent at The Citadel. For years at The Citadel, the mode was 1, mean was 10.386 and the median was 7.

Seventy-eight of 141 respondents (55.3 percent) reported tenure status, 19.9 percent (28) reported tenure track, and 22.7 percent (32) reported non-tenure track or less than full-time status. Responses were received from each department. Table 01 presents a breakdown of responses by percentage and the actual number of respondents by department.

Table 01

Total Responses by Departments

Department	Relative frequency	Absolute frequency
Aerospace Studies	2.8	4
Biology	3.5	5
Business Administration	9.9	14
Chemistry	5.0	7
Civil engineering	2.8	4
Education	10.6	15
Electrical Engineering	3.5	5
English	10.6	15
Health and Physical Education	3.5	5
History	7.1	10
Library	4.3	6
Mathematics/Computer Science	8.5	12
Military Science	5.0	7
Modern Languages	3.5	5
Naval Science	4.3	6
Physics	3.5	5
Political Science	6.4	9
Psychology	4.3	6
Other Response	.7	1
N = 141 Totals	99.8	141

Library use and value.

Given a checklist of six reasons for library use, faculty respondents were asked to indicate the frequency of reasons to use the library. Table 02 presents the number and percentage of actual responses.

Table 02

Frequency of Faculty Reasons for Library Use

	Least frequent				Most frequent	Not used	Missing
Reasons	1	2	3	4	5	6	cases
Checkout/ use books	(9) 6.4	(20) 14.2	(25) 17.7	(26) 18.4	(53) 37.6	(7) 5.0	(1) .7
Use journals/ periodicals	(10) 7.1	(12) 8.5	(47) 33.3	(36) 25.5	(24) 17.0	(7) 5.0	(5) 3.5
Print/computer databases	(25) 17.7	(23) 16.3	(32) 22.7	(18) 12.8	(18) 12.8	(13) 9.2	(12) 8.5
Recreational reading	(43) 30.5	(23) 16.3	(18) 12.8	(8) 5.7	(6) 4.3	(27) 19.1	(16) 11.3
Research assistance	(17) 12.1	(32) 22.7	(27) 19.1	(20) 14.2	(20) 14.2	(14) 9.9	(11) 7.8
Interlibrary loan	(24) 17.0	(22) 15.6	(29) 20.6	(23) 16.3	(16) 11.3	(20) 14.2	(7) 5.0

N = 141

Note. Figures in parentheses represent actual number of respondents.

Although 37.6 percent (53/141) respondents rated books (on a scale: 1-2-3-4-5-6: 1 least frequent to 5 most frequent and 6 not used) as the most frequent reason to use the library, 10.4 percent (16) responded least frequent or not used. Recreational reading drew the largest response rate for (30.5 percent) least frequent reasons. As for use of periodicals, a social sciences professor responded "less frequent" and commented "Because we have such a poor collection."

The early 1980s were a time of significant budget cuts for The Citadel Library. During these years, the library applied emerging technologies such as the online applications of commercial bibliographic databases, cataloging, and interlibrary loan through a bibliographic utilitiy. Also, during these years, Quirk and Whitestone (1982) published a study concluding and projecting library budgets for materials that realized little increase after adjusting for inflation. Table 03 summarizes responses given to the following question: How important to your discipline are purchases in the following areas when budgets are cut?

Table 03

Faculty Opinions on Important Library Purchases to Their Discipline When Budgets Are Cut

Category	Least important 1	2	3	Most important 4	5	No Opinion 6	Missing cases
Periodicals/	(2)	(7)	(14)	(26)	(79)	(11)	(2)
journals	1.4	5.0	9.9	18.4	56.0	7.8	1.4
Media/	(49)	(31)	(18)	(12)	(7)	(19)	(5)
audiovisual	34.8	22.0	12.8	8.5	5.0	13.5	3.5
Reference	(11)	(12)	(39)	(34)	(28)	(12)	(5)
collection	7.8	8.5	27.7	24.1	19.8)	8.5	3.5
Main	(8)	(11)	(32)	(2)	(44)	(12)	(2)
circulating	5.7	7.8	22.7	22.7	31.2	8.5	1.4

N = 141

Note. Figures in parentheses represent actual number of respondents.

If faced with budget cuts, a majority (74.4 percent or 105/141) of faculty respondents selected periodicals/journals purchases (on a scale: 1-2-3-4-5-6; 1 least important to 5 most important and 6 no opinion) as more or most important to their discipline. Respondents across the curriculum, expressed comments consonant with the following request from a social sciences professor for a, "better & [sic] more complete journal collection (need to expand journals)". In contrast, respondents selected (80/141 or 56.8 percent) audio/video media as less or least important. One social sciences professor suggested, "Develop a real media center with staff. . . . Almost every other public and private College and University in S. C. have this. Why can't we???" The highest percentage (27.7 or 39/141) of neutral responses was for the reference collection.

Faculty members were asked to what degree they usually encouraged students to use library resources for six types of assignments. Table 04 summarizes responses to the query: To what degree do you usually encourage students to use the library for assignments below?

Table 04

Frequency that Faculty Members Encourage Students To Use Library For Types of Assignments

Category	Least often 1	2	3	4	Most often 5	N/A 6	Missing cases
Critical thought paper	(16) 11.3	(6) 4.3	(14) 9.9	(20) 14.2	(35) 24.8	(42) 29.8	(8) 5.7
Research paper	(5) 3.5	(4) 2.8	(8) 5.7	(30) 21.3	(63) 44.7	(22) 15.6	(9) 6.4
Oral report	(23) 16.3	(9) 6.4	(22) 15.6	(26) 18.4	(21) 14.9	(26) 18.4	(14) 9.9
Book/journal review	(14) 9.9	(8) 5.7	(15) 10.6	(25) 17.7	(34) 24.1	(35) 24.8	(10) 7.1
Gathering/ interpreting data	(18) 12.8	(14) 9.9	(31) 22.0	(17) 12.1	(22) 15.6	(30) 31.3	(9) 6.4

N = 141

Note. Figures in parentheses represent actual number of respondents.

Respondents selected (on a scale: 1-2-3-4-5-6; 1 least often to 5 most often and 6 not applicable) the "research/paper prospectus" 44.7 percent (63/141) as their most often response for reason to encourage students to use library resources for assignments. The largest (42/142 or 29.8 percent) not applicable response was for the "critical thought paper." The largest neutral response was for gathering or interpreting data, while the largest least frequent response was for the oral report.

After asking to what degree they encouraged students to use library resources for specific types of assignments, faculty participants were asked to rate (on a scale: 1-2-3-4-5-6; 1 least adequate to 5 most adequate and 6 not applicable) the adequacy of library resources to produce those assignments. More than 70 percent (100/141) of respondents selected 3 (neutral) or 4 (more adequate) for producing quality designated projects. Fifteen respondents selected 6 (not applicable) and 4 selected 1 (least adequate). One faculty member from the humanities backed the 70 percent of "neutral and more adequate" responses by responding, "For the usual needs of undergraduates." However, the faculty member qualifies the response with "But not, for instance, to assign a quality Senior Thesis."

At survey time, The Citadel Library had no history of formalized library/orientation for faculty members, except for brief comments delivered as part of academic orientation for new faculty members. Table 05 summarizes preferences:

Which instruction method should the library staff use to orient faculty to technologies such as CD-ROM (e. g., laser disk end user database searching)? (Check only one.)

Table 05

Faculty Preferences for Library Orientation

Category	Number	% Checking preference
Individualized instruction	(64)	45.4
Workshop opportunity	(53)	37.6
None	(2)	1.4
Other	(6)	4.3
Missing cases	(16)	11.3

N = 141

Nearly half (45.4 percent) of the respondents preferred individualized instruction for faculty orientation, while 37.6 percent preferred the workshop opportunity. Typical "other" suggestions were for combining individualized instruction and workshops, as illustrated by one humanities professor's comment, "Handouts, instructional classes, newsletters, ..." Two respondents also suggested "Operations manual" and "Make manual available."

Needs assessment and library instruction.

Given that the library is primarily an undergraduate institution, questions to faculty participants on research needs were designed to seek opinion for assessing library services for students. Nonetheless, Table 06 presents faculty responses on the importance of specified methods in identifying or acquiring needed information for research.

Table 06

Faculty Opinions on Resource Methods Important to Identifying or Acquiring Information for Research

Category	Least important 1	2	3	Most important 4	5	No Opinion 6	Missing cases
Field journals	(1) .7	(3) 2.1	(10) 7.1	(28) 19.9	(87) 61.7	(5) 3.5	(5) 3.5
Other field journals	(26) 18.4	(32) 22.7	(28) 19.9	(20) 14.2	(4) 2.8	(14) 9.9	(17) 12.1
Searching library catalogs	(10) 7.1	(27) 19.1	(33) 23.4	(22) 15.6	(23) 16.3	(10) 7.1	(16) 11.3
Locating source citations	(10) 7.1	(14) 9.9	(42) 29.8	(24) 17.0	(30) 21.3	(8) 5.7	(13) 9.2

Table 06 (Continued)

Category	Least important 1	2	3	Most important 4	5	No Opinion 6	Missing cases
Consulting librarian	(9) 6.4	(27) 19.1	(44) 31.2	(21) 14.9	(14) 9.9	(10) 7.1	(16) 11.3
Browsing shelves	(28) 19.9	(22) 15.6	(35) 24.8	(17) 12.1	(17) 12.1	(8) 5.7	(14) 9.9
Using indexes/ abstracts	(6) 4.3	(18) 12.8	(26) 18.4	(41) 29.1	(31) 22.0	(7) 5.0	(12) 8.5
Reading reviews	(13) 9.2	(20) 14.2	(40) 28.4	(28) 19.9	(19) 13.5	(9) 6.4	(12) 8.5

N = 141

Note. Figures in parentheses represent actual number of respondents.

The method of identifying or acquiring needed information for research to receive the largest (115/141 or 81.6 percent) "more" or "most important" (on a scale: 1-2-3-4 5-6; 1 least important to 5 most important and 6 no opinion) response was "reading journals in your field."

Before questioning participants on library instruction for students, respondents were asked about encouraging students to use the library and their preference for teaching core curriculum resource and reference skills. For present courses, 12.8 percent of respondents did not encourage students to use the library, while the mean was 1.719 and both the mode and the median were two courses. Figure 01 summarizes answers to the query: In how many of your present courses do you encourage students to use the library?

Figure 01

Number of Present Courses in Which Faculty Members Encourage Student Library Use

---

Number of courses

```
    0      **************:***
    1      ********************************:****
    2      *************************************:***
    3      ***************
    4      ******:
    5      :*
    6      *
          I.........I.........I.........I.........I.........I
          0         10        20        30        40        50
                        Histogram Frequency
```

Note. One symbol equals approximately 1.00 occurrence.

Table 07 summarizes answers on how core curriculum resource and reference skills should be taught to students.

Table 07

Faculty Instruction Preferences on Core Curriculum Resources and Reference Skills for Students

Category	% Checking preference	(N)
Credited/required orientation	24.1	(34)
Non-credited/required orientation	37.6	(53)
Required for completing course	14.9	(21)
Other	17.0	(24)
Missing cases	6.4	(9)

N = 141

Note. Figures in parentheses represent actual number of respondents.

"Taught as a non-credited/required orientation course was the response (53/141 or 37.6 percent) with largest frequency. Faculty comments ranged from "Not taught" to "As is now being taught to freshmen". One social sciences professor who answered "other" wrote "Targeted courses at a level matched to academic level. Not all/any courses and NOT just at the beginning of the career . . . ."

Following the query on faculty preference for the teaching of resource and reference skills, respondents were then asked their opinions on the usefulness of seven specific instruction methods. Table 08 summarizes responses to the following question: How useful would the following library use methods or materials be for students?

Table 08

Faculty Opinions on Usefulness of Library Instruction Methods for Students

Category	Least useful 1	2	3	Most useful 4	5	No Opinion 6	Missing cases
How-to handouts	(6) 4.3	(9) 6.4	(34) 24.1	(38) 27.0	(42) 29.8	(3) 2.1	(9) 6.4
Self-paced workbook	(20) 14.2	(34) 24.1	(30) 21.3	(15) 10.6	(21) 14.9	(7) 5.0	(14) 9.9
In-class visiting lecturer	(24) 17.0	(30) 21.3	(40) 28.4	(20) 14.2	(10) 7.1	(3) 2.1	(14) 9.9
In-library conducted instruction	(3) 2.1	(11) 7.8	(29) 20.6	(47) 33.3	(37) 26.2	(3) 2.1	(11) 7.8

Table 08 (Continued)

Category	Least useful			Most useful		No Opinion	Missing
	1	2	3	4	5	6	cases
Information from professor	(14)	(26)	(49)	(27)	(9)	(5)	(11)
	9.9	18.4	34.8	19.1	6.4	3.5	7.8
Computer help screens	(3)	(15)	(36)	(37)	(34)	(3)	(13)
	2.1	10.6	25.5	26.2	24.1	2.1	9.2
Help as needed from librarian	(1)	(6)	(22)	(36)	(66)	(3)	(7)
	.7	4.3	15.6	25.5	46.8	2.1	5.0

N = 141

Note. Figures in parentheses represent actual number of respondents.

One humanities professor responded, "Not sure. It would be wonderful if they would USE it . . . ." The largest least useful (on a scale: 1-2-3-4-5-6; 1 least useful to 5 most useful and 6 no opinion) response (24/141 or 17 percent) for the seven methods or materials was for "in-class visiting lecturer," while 40 respondents or 28.4 percent were neutral, and 3 expressed no opinion. The largest most useful response (66/141 or 46.8 percent) was for "help as needed from a reference librarian," with 22 or 15.6 neutral and 1 no opinion. One humanities faculty member rated only one of the eight methods, "help as needed from a reference librarian most useful and then commented, "I have found that attempts to direct a senior research paper foundered on lack of adequate interest, lack of research skills on the part of the student, and lack of adequate library material TO HAND."

Faculty suggestions are a key component of The Citadel Library's collection development and service offerings. To assess faculty opinion, faculty respondents were asked to agree or disagree with the following statement: I am satisfied with the opportunities I have to recommend to the library staff the purchase of materials or services. Table 09 summarizes answers:

Table 09

Faculty Opinions on the Opportunity to Recommend Purchases to Library Staff

Category - Scale		Percent	Number
Strongly disagree	1	5.7	(8)
	2	5.7	(8)
	3	20.6	(29)
	4	34.8	(49)
Strongly agree	5	19.1	(27)
No opinion	6	12.8	(18)
Missing cases		1.4	(2)

N = 141

Note. Figures in parentheses represent actual number of respondents.

Fifty-eight of 141 (53.9 percent) of responses fell into the (on a scale: 1-2-3-4-5-6; 1 strongly disagree to 5 strongly agree and 6 no opinion) agree or strongly agree category. In contrast, 16 (11.4 percent) responses fell into the strongly disagree or disagree category. One humanities professor who disagreed, commented, "[I] don't get to deal directly w/[ith] library staff; must go through department," while a sciences professor commented, "It is easy to recommend purchases, but the recommendations seem to go into a black hole."

Two follow-up questions assessed opinion on funding and accessing materials The Citadel Library (or individual college departments) did not own. Figure 02 summarizes responses on how interlibrary charges should be funded:

Figure 02

Faculty Preferences for Interlibrary Loan Funding

```
        I
By    1 -------------------------------------------------+
the     I                                             99I
college -------------------------------------------------+
        I
By    2 -------------+
the     I         26 I
user    -------------+
        I
      3 -----+
Other   I 10 I
        -----+
        I
        I.........I.........I.........I.........I.........I
        0        15        30        45        60        75
                           Percent
```

N = 141.

Note. Missing cases = 6.

Confirming the majority (99/141 or 70.2 percent) of responses to should interlibrary loan borrowing charges be funded by the college, by the user (26/141 or 18.4 percent) or by some other (10/141 or 7.1 percent) method, one humanities professor selected "by the college" and noted, "To be kept from borrowing a book is especially for a beginning professor - a wasteful hardship." Responses to "other" ranged in scope from negative to positive to one of compromise from one sciences professor who suggested that the college fund interlibrary loans "For research or course requirement. . . . Otherwise [,funding should be by] "user fee."

As one assessment of accessing campus information or resources not listed in the library catalog, respondents were asked if the location of all campus media should be listed in the library online catalog, ATLAS. Respondents strongly objected to listing college media with a 78 percent (110/141) "no" response and a 15.6 percent (22/141) "yes" response. Most comments supported the no frequency, but responses ranged from "[no,] definitely not. Emphatic!" to "[yes,] Absolutely!"

Student Questionnaire Data

Student respondents were asked to indicate their academic user category (class standing), gender, and grade point average (GPA) and major at The Citadel. Respondents were 81.69 percent (232/284) male and 17.61 percent (50/284) female. Overall composition of students for Fall, 1991 was

68.01 percent (2502/3679) male and 31.99 percent (1177/3679) female. The Citadel mean grade point average for respondents in Fall, 1991 was 2.715. Figure 03 summarizes respondents' GPA:

Figure 03

Histogram of Respondents' Grade Point Average

```
Midpoint

       .2
       .4
       .6  :**e 03 (Continued)

      3.4  ********************
      3.6  *******************:*****
      3.8  *************:**************
      4.0  *********:********************
      4.2

           I....+....I....+....I....+....I....+....I....+....I
           0         6         12        18        24        30
                          Histogram Frequency
```

N = 284; Missing cases = 59.

Note. One symbol equals approximately .60 occurrences.

For class standing, participants were asked to check user category according to class standing: freshman, sophomore, junior, and senior. Representativeness for respondents by class standings was comparable to percentages for overall composition of students enrolled in Fall, 1991 for all classes except junior and graduate students. If applicable, each student was asked to indicate less than full time status. Thirty-three respondents reported less than full-time status. Table 10 summarizes percentage and number of respondents by class standing for undergraduates classes and for graduate students:

Table 10

Distribution of Enrollment by Class Standing for Overall Composition of Students and Respondents

	Overall Composition of Students		Respondents	
Class Standing	Number	Percent	Number	Percent
Freshman	723	19.65	57	20.07
Sophomore	566	15.38	57	20.07
Junior	376	10.22	54	19.01
Senior	495	13.45	42	14.78
Graduate student	1407	38.24	64	22.53
Missing cases/	-	-	10	03.52
Unclassified	112	03.04	-	-

Note. Respondents N = 284; Overall Composition N = 3679. Percentages and actual number of respondents.

Each major or major area of study was represented in the responses. Table 11 summarizes frequencies for each department:

Table 11

Distribution of Students by Major/Area of Study

Department	Percent	Number
Biology	5.3	15
Business Administration	27.5	78
Chemistry	.7	2
Civil Engineering	6.3	18
Education	14.1	40
Electrical Engineering	7.0	20
English	3.2	9
Health and Physical Education	2.5	7
History	7.4	21
Mathematics/Computer Science	2.1	6
Modern Languages	1.8	5
Physics	1.4	4
Political Science	12.3	35
Psychology	5.6	16
Undeclared	.7	2
Missing Cases	2.1	6
N = 284 Totals	100.0	284

Note. Percentages and actual number of respondents.

Library use and value.

To determine library use by students, respondents were asked how many courses they were taking during Fall, 1991, how frequently they used the library for any reason, and how many of their courses required use of the library. Mean response times respondents used the library for any reason were 2.180 times per week (122/284), 2.885 times per month (61/284), 3.792 times per semester (53/284). Nineteen of 284 (6.6 percent) respondents reported they never use the library.

Responses to number of courses taken during the survey period ranged 1 to 16 with a median of 6 (72/284). When asked "how many of your courses this semester require use of the library," respondents selected 0 to 6 with a mode of 1 (73/284). Ten of 284 (3.5 percent) respondents were taking a class at an off-campus field site during the semester.

When asked if current professors encouraged use of the library, 61.6 percent (175/284) respondents answered yes and 35.9 percent (102/284) answered no. After determining use, professor encouragement to use, courses taken, and courses requiring use, participants were queried on frequency of library use for specific reasons. Table 12 presents answers given to the following statement: From the checklist below of reasons for library use, indicate how frequently these reasons apply to you.

Table 12

Frequency of Library Use by Reasons

Reason	Least frequent 1	2	3	Most frequent 4	5	Not used 6	Missing cases
Checkout/ use books	(49) 17.3	(37) 13.0	(52) 18.3	(44) 15.5	(60) 21.1	(38) 13.4	(4) 1.4
Journals/ periodicals	(40) 14.1	(40) 14.1	(63) 22.2	(40) 14.1	(50) 17.6	(47) 16.5	(4) 1.4
Use Indexes	(70) 24.6	(46) 16.2	(37) 13.0	(28) 9.9	(25) 8.8	(68) 23.9	(10) 3.5
Study my textbooks	(69) 24.3	(30) 10.6	(36) 12.7	(38) 13.4	(41) 14.4	(61) 22.2	(9) 3.2
Recreational reading	(74) 26.1	(30) 10.6	(39) 13.7	(28) 9.9	(15) 5.3	(87) 30.6	(11) 3.9

Table 12 (Continued)

Reasons	Least frequent 1	2	Most frequent 3	4	5	Not used 6	Missing cases
Research	(21)	(40)	(53)	(70)	(47)	(48)	(5)
assistance	7.4	14.1	18.7	24.6	16.5	16.9	1.8
Interlibrary	(88)	(20)	(20)	(14)	(2)	(134)	(6)
loan	31.0	7.0	7.0	4.9	.7	47.2	2.1

N = 284

Note. Percentages; figures in parentheses represent actual number of respondents.

In responses (on a scale 1-2-3-4-5-6; 1 least frequent to 5 most frequent and 6 not used), the two reasons with largest number of most frequent responses were "to checkout or use books" at 60/284 and "to use periodicals or journals" at 50/284. The two reasons with the largest number of least frequent responses were "interlibrary loan" at 88/284 and "recreational reading" at 74/284. The number of not used responses were largest for "interlibrary loan" (134/284) and "recreational reading" (87/284).

To assess library resources and services for completing assignments, participants were asked to indicate how valuable resources and services were for five types of assignments. On a scale (1-2-3-4-5-6; 1 least often to 5 most often and 6 not applicable), respondents judged "research paper or prospectus" as the most often valuable (86/284) in the assignment categories. The assignment category receiving the largest least often response was the "oral report" (48/284) also received the largest not applicable (143/284) response. Table 13 summarizes the answers given to the following question: During Fall, 1991, how valuable have library resources and services been for completing the assignments below?

Table 13

Library Resources And Services Have Been Valuable for Completing Assignments

Assignment	Least often			Most often		Applicable	Missing
category	1	2	3	4	5	6	cases
Critical	(31)	(24)	(37)	(28)	(38)	(120)	(6)
thought paper	10.9	8.5	13.0	9.9	13.4	42.3	2.1
Research	(9)	(15)	(32)	(59)	(86)	(79)	(4)
paper	3.2	5.3	11.3	20.8	30.3	27.8	1.4
Oral	(48)	(24)	(29)	(26)	(8)	(143)	(6)
report	16.9	8.5	10.2	9.2	2.8	50.4	2.1
Book/journal	(17)	(28)	(39)	(46)	(37)	(112)	(5)
review	6.9	9.9	13.7	16.2	13.0	39.4	1.8
Gathering/	(23)	(26)	(51)	(62)	(40)	(77)	(5)
interpretating							
data	8.1	9.2	18.0	21.8	14.1	27.1	(1.8

N = 284

Note. Percentages; figures in parentheses represent actual number of respondents.

For seven areas of library service assistance and library holdings, respondents were asked how adequate the areas were for their major field of study. Of the seven, "reference librarian assistance" received the largest number of responses (on a scale of 1-2-3-4-5; 1 least adequate to 5 most adequate) for "most adequate." Table 14 presents responses the query: For your major field of study, circle the adequacy of service assistance and library holdings listed.

Table 14

Adequacy of Library Service and Assistance for Your Major Area of Study

Assistance/ holdings	Least adequate 1	2	3	Most adequate 4	5	N/A 6	Missing cases
Reference	(11)	(12)	(58)	(74)	(69)	(55)	(5)
librarian	3.9	4.2	20.4	26.1	24.3	19.4	1.8
Microfilm/	(25)	(16)	(66)	(50)	(40)	(82)	(5)
microfiche	8.8	5.6	23.2	17.6	14.1	28.9	1.8
Catalog	(24)	(31)	(59)	(36)	(31)	(96)	(7)
(ATLAS)	8.5	10.9	20.8	12.7	10.9	34.2	2.8

Table 14 (Continued)

Assistance/ holdings	Least adequate 1	2	3	Most adequate 4	5	N/A 6	Missing cases
Reserves/	(18)	(29	(63)	(46)	(29)	(91)	(8)
circulation	6.3	10.2	22.2	16.2	10.2	32.0	2.8
Interlibrary	(30)	(24)	(31)	(28)	(18)	(145)	(8)
loan	10.6	8.5	10.9	9.9	6.3	51.1	2.8
Periodicals/	(21)	(30)	(48)	(64)	(60)	(56)	(5)
journals	7.4	10.6	16.9	22.5	21.1	19.7	1.8
Books	(9)	(26)	(46)	(80)	(67)	(50)	(6)
	3.2	9.2	16.2	28.2	23.6	17.6	2.1

N = 284

Note. Percentages; figures in parentheses represent actual number of respondents.

Needs assessment and library instruction.

To determine library user information needs, respondents were asked their opinions on acquiring information and gathering information in the library. For responses (on a scale 1-2-3-4-5-6; 1 strongly disagree to 5 strongly agree and 6 no opinion) on "acquiring information is important to my coursework or job performance," 71.8 percent (204/284) answered 4 or 5, with 3.2 percent (9/284) 1 or 2. Missing cases were 5 and no opinion responses were 17 or 6.0 percent. In gathering information in the library, respondents were asked to indicate the degree you "found what you needed" because of your research ability, your browsing or good luck, and your urgent need to find the information.

In responses (on a scale 1-2-3-4-5-6; 1 lowest to 5 highest and 6 not applicable), more than half (54.2 percent or 154/284) of the respondents judged their research ability confidently (4 or 5 responses). More than 55 percent responded to low or lowest (1 or 2) degree for browsing or luck to find what was needed. Sixty of 284 respondents answered the highest degree (5) that they found what was needed because of an urgent need to find the information.

Table 15 summarizes the responses:

Table 15

Information Located in the Library Because of Research Ability, Browsing, or Urgent Need to Find

Scaled fixed responses	Research ability	(N)	Browsing or luck	(N)	Urgent need to find	(N)
1 Lowest	4.2	(12)	19.7	(56)	4.9	(14)
2	8.5	(24)	25.0	(71)	9.2	(26)
3	23.6	(67)	19.4	(55)	21.1	(60)
4	33.8	(96)	10.9	(31)	28.5	(81)
5 Highest	20.4	(58)	4.6	(13)	21.1	(60)
6 Not applicable	6.7	(19)	17.6	(50)	13.0	(37)
Missing cases	2.8	(8)	2.8	(8)	2.1	(6)

N = 284

Note. Percentages; figures in parentheses represent actual number of respondents.

After assessing student opinion on the importance of acquiring information and user success in gathering information, participants were asked: "When unable to find what I need in the library, I normally conclude that the library does not have the information." More than half of the respondents disagreed (on a scale 1-2-3-4 5 6; 1 strongly disagree to 5 strongly agreed and 6 no opinion) (164/284) concluding that the library does have information they are unable to find. Forty-five of 284 respondents answered 4 or

5. Missing cases were 5 and no opinion responses were 14.

McCormick (1983) recommended that librarians avoid stressing the search for information over use after finding the information. Before assessing student opinion on library use instruction, participants were asked to rate eight specific methods for gathering information for courses. Then, participants were asked to what degree can you determine (on your own) the value or relevance of what you found.

Respondents (on a scale 1-2-3-4-5-6; 1 least important to 5 most important and 6 no opinion) selected their highest number of most important responses (73/284) for "consulting a reference librarian" and their highest number of least important responses (79/284) for "browsing shelves." Table 16 presents answers to the query: How important to you are the following methods in gathering information for courses?

Table 16

Student Perceptions on Methods Important in Gathering Information for Courses

Method	Least important 1	2	3	Most important 4	5	N/A 6	Missing cases
Field journals	(28) 9.9	(31) 10.9	(53) 18.7	(63) 22.2	(76) 26.8	(28) 9.9	(5) 1.8
Other field journals	(74) 26.1	(77) 27.1	(54) 19.0	(13) 4.6	(12) 4.2	(48) 16.9	(6) 2.1
Library catalogs	(33) 11.66	(41) 14.42	(86) 30.3	(46) 16.2	(32) 11.3	(40) 14.1	(6) 2.1
Locate source citations	(31) 10.9	(39) 13.7	(76) 26.8	(61) 21.5	(25) 8.8	(46) 16.2	(6) 2.1
Consult librarian	(13) 4.6	(26) 9.2	(56) 19.7	(83) 29.2	(73) 25.7	(27) 9.5	(6) 2.1

Table 16 (Continued)

	Least important		Most important			N/A	Missing
Method	1	2	3	4	5	6	cases
Browse	(79)	(61)	(43)	(37)	(19)	(38)	(7)
shelves	27.8	21.5	15.1	13.0	6.7	13.4	2.5
Indexes/	(25)	(28)	(67)	(71)	(52)	(35)	(6)
abstracts	8.8	9.9	23.6	25.0	18.3	12.3	2.1
Read	(40)	(37)	(51)	(61)	(42)	(47)	(6)
reviews	14.1	13.0	18.0	21.5	14.8	16.9	2.1

N = 284

Note. Percentages; figures in parentheses represent actual number of respondents.

Using the library, finding what may be needed, and then determining the value of what has been located are major concerns of users. Although limited to interpreting and finding the right citations while searching on CD-ROMs, Nash and Wilson, (1991) found that ". . . most patrons (16 of 25) were satisfied, if not pleased, with their research results despite the fact that two-thirds found less than 5 percent of their search results useful for their research" (p. 88).

In responses (on a scale 1-2-3-4-5-6; 1 lowest to 5 highest and 6 not applicable), more than 70 percent (202/284) of respondents were satisfied (4 or 5) they could determine the value or relevance of a source on their own, while 7 respondents marked 1 or 2. Not applicable and no opinion responses were 24 and 6, respectively.

To extend the inquiry on student ability to determine the value or relevance of a source, respondents were queried on the degree they sought assistance in four specific ways. The strongest (146/284) lowest/lower response (on a scale 1-2 3-4 5 6; 1 lowest to 5 highest and 6 not applicable) was to "seek no assistance" while the strongest (177/284) highest/highest response was to "seek reference librarian assistance. Table 17 summarizes the answers to the following statement: When unable to determine the value or relevance of a source on your own (question 16), indicate the degree you normally seek

Table 17

Degree Students Seek Assistance When Unable to Determine the Value or Relevance of a Source on Their Own

Assistance category	Lowest 1	2	3	Highest 4	5	N/A 6	Missing cases
No	(99)	(47)	(42)	(23)	(17)	(49)	(7)
assistance	34.9	16.5	14.8	8.1	6.0	17.3	2.5
Librarian	(12)	(22)	(53)	(83)	(94)	(17)	(3)
assistance	4.2	7.7	18.7	29.2	33.1	6.0	1.1
Professor	(25)	(38)	(68)	(68)	(51)	(29)	(5)
assistance	8.8	13.4	23.9	23.9	18.0	10.2	1.8
Colleague	(26)	(30)	(63)	(87)	(49)	(26)	(3)
assistance	9.2	10.6	22.2	30.6	17.3	9.2	1.1

N = 284

Note. Percentages; figures in parentheses represent actual number of respondents.

After expressing opinions on gathering, evaluating and seeking assistance in finding information in the library, participants were then asked to rate the usefulness of seven instruction methods for finding information. Responses (on a scale 1-2 3-4 5 6; 1 least to 5 most useful and 6 no opinion) ranged from a least useful or less useful (4 or 5) high (177/284) for the "self-paced workbook," to most useful or more useful (4 or 5) high (237/284) for "help as needed from librarian." More than half (50.3 percent) of the respondents saw computer help screens as "more" or "more useful." Table 18 summarizes the answers to: How useful would the following methods of finding information be for your needs?

Table 18

Student Opinions on Usefulness of Library Instruction Methods

Method	Least useful 1	2	3	Most useful 4	5	No Opinion 6	Missing cases
How-to handouts	(45) 15.8	(36) 12.7	(79) 27.8	(58) 20.4	(48) 16.9	(38) 13.4	(3) 1.1
Self-paced workbook	(104) 36.6	(73) 25.7	(46) 16.2	(23) 8.1	(13) 4.6	(47) 16.5	(3) 1.1
In-class visiting lecturer	(70) 24.6	(66) 23.2	(56) 19.7	(47) 16.5	(25) 8.8	(68) 23.9	(3) 1.1
In-library conducted instruction	(52) 18.3	(48) 16.9	(67) 23.6	(58) 20.4	(43) 15.1	(61) 22.2	(3) 1.1

Table 18 (Continued)

Method	Least useful 1	2	3	Most useful 4	5	No Opinion 6	Missing cases
Information from professor	(36) 12.7	(38) 13.4	(82) 28.9	(71) 25.0	(44) 15.5	(87) 30.6	(4) 1.4
Computer help screens	(16) 5.6	(17) 6.0	(53) 18.7	(91) 32.0	(95) 33.5	(48) 16.9	(3) 1.1
Help as needed from a reference librarian	(3) 1.1	(8) 2.8	(27) 9.5	(65) 22.9	(172) 60.6	(7) 2.5	(2) .7

N = 284

Note. Percentages; figures in parentheses represent actual number of respondents.

Analysis of the Findings

To test the multi-part null hypotheses as stated in Chapter I and to determine if significant difference exists between any two groups, a separate one-way (ANOVA) analysis of variance was used for two multi-part questions of the faculty questionnaire and tested as multi-part Hypothesis I_A and I_B. All fixed scaled response questions of the student questionnaire were tested in multi-part Hypotheses II and III.

The F probability was used to determine significant difference at alpha .05. When significant difference existed, the Scheffe post hoc procedure was used to determine the groups that differ in their response to the item statement. The Scheffe procedure was used because it is the most conservative of multiple comparison procedures (Huck, Cormier & Bounds, 1974). Furthermore, Kennedy (1978) labels the Scheffe procedure as "the most flexible method in that both pairwise and compound contrasts can be made, and these types of comparisons can be executed for both equal and unequal N situations" (p. 212). The underlining method was used in tables to designate significant difference.

Faculty group participants were faculty respondents, excluding ROTC faculty and one faculty member recorded as other, divided into three clusters. These clusters are identical to the subject-area cluster divisions of the college academic faculty: A) social sciences (Business

Administration, Education, Health and Physical Education, and Psychology), B) humanities (English, History, Library, Modern Languages, and Political Science), C) sciences (Biology, Chemistry, Civil Engineering, Electrical Engineering, Mathematics and Computer Science, and Physics). Totals and statistical results of groups differ from population totals because all respondents are not included in the clusters.

The student groups are two sets, one grouping of respondents divided into three major area of study clusters similar to the faculty clusters and the second grouping of respondents divided into three groups selected by class standing. The class standing groups are A) lower-level undergraduates (freshmen and sophomores), B) upper-level undergraduates (juniors and seniors), and C) graduate students. Totals and statistical results of groups differ from population totals because all respondents are not included in the student groups.

Hypothesis I

I. There are no significant differences in the responses of The Citadel faculty members in the social sciences, the humanities, and the sciences in this study on:
   A. How important to you are purchases in the following areas when budgets are cut?
      1. periodicals/journals collections
      2. media (audio/videorecordings)
      3. reference collection (indexes, abstracts, and databases

4. main collection (circulating books)

B. To what degree do you usually encourage students to use library resources for assignments below?
   1. critical thought paper
   2. research paper or prospectus
   3. oral report
   4. book or journal article review
   5. gathering or interpreting data

Periodicals/journals collection purchases were very important to all faculty academic clusters when budgets are cut (Hypothesis I_A1). The three group mean (on a 1-2-3-4-5 scale; 1 least important 5 most important) was 4.4211. The F probability (.0855) for this item was greater than alpha .05. This probability indicated no significant difference existed between the groups. Therefore, null hypothesis I_A1 was accepted.

The cluster A (social sciences) mean registered highest at 4.6757, while Clusters B (humanities) and C (sciences) responses were 4.2381 and 4.3714, respectively. Scheffe post hoc analysis confirmed no two groups significantly different at .05 in this study. Table 19 summarizes the analysis:

Table 19

Summary of Inferential Analysis for

Importance of Journals Collection Purchases to Academic

Cluster Faculty Members When Budgets are Cut

Ho	Groups	p	Mean Comparisons		
			CLUS_B	CLUS_C	CLUS_A
I_A1	A = Social Sciences				
		.0855	N=42	N=35	N=37
	B = Humanities				
			4.2381	4.3714	4.6757
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Media (audiovisuals) collection purchases were not a top priority for any faculty academic cluster when budgets are cut (Hypothesis I_A2). The three group total mean (on a scale 1-2-3-4-5; least important to most important) was 2.0680. The F probability was .0017 at alpha .05, indicating significant difference existed between groups on this item. Therefore, null hypothesis I_A2 was rejected.

The three group means indicate that responses were similar between clusters A (social sciences), mean 2.500, and B (humanities), mean 2.1463, but cluster C (sciences) judged the purchase of audiovisual media least important at 1.4286. Scheffe post hoc analysis suggests similarity existed in this study between humanities and social sciences faculties on the importance of media (audiovisuals) collection purchases when budgets are cut and a significant difference (.05) between science faculty members and all other faculty members. Table 20 summarizes the analysis:

Table 20

Summary of Inferential Analysis for Importance of Media Purchases to Academic Cluster Faculty Members When Budgets are Cut

Ho	Groups	p	Mean Comparisons		
			CLUS_C	CLUS_B	CLUS_A
I_A2	A= Social Sciences				
		.0017	N=28	N=41	N=34
	B = Humanities				
			1.4286	2.1463	2.5000
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Purchases in the Reference collection (Hypothesis I_A3) were important to all academic clusters when budgets are cut. The total three group mean (on a scale 1-2-3-4-5; 1 least important to 5 most important) was 3.5091. The F probability was .0979 at alpha .05. The results showed no significant difference between groups on this item. Therefore, null hypothesis I_A3 was accepted.

The highest cluster (3.8529) mean was A (social sciences), while C (sciences) at 3.4118 and B (humanities) at 3.095 were more similar. Scheffe post hoc analysis confirmed no significant difference (.05) existed between any two groups in this study. Table 21 summarizes the analysis:

Table 21

Summary of Inferential Analysis for

Importance of Reference Collection Purchases to Academic Cluster Faculty Members When Budgets are Cut

Ho	Groups	p	Mean Comparisons		
			CLUS_B	CLUS_A	CLUS_C
I_A3	A = Social Sciences				
		.0979	N=42	N=34	N=34
	B = Humanities				
			3.3095	3.4118	3.8529
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

According to academic cluster responses, the humanities (B) cluster favored the Main collection (circulating) as more important, a 4.5116 mean, when the budgets are cut. Total three group mean was 3.8125 (on a scale 1-2-3-4-5; 1 least important to 5 most important). The F probability (.0000) for this statement was considerably greater than alpha .05, indicating significant difference existed between groups on this item. Therefore, null hypothesis I_A4 was rejected.

The means of clusters A (social sciences) and C (sciences) were more similar (social sciences) at 3.0882 and 3.6571, respectively. Scheffe post hoc analysis suggests commonalty in this study between social sciences and sciences faculties but significant difference between them and humanities faculty members on the importance of the Main circulating collection when budgets are cut. Table 22 summarizes the analysis:

Table 22

Summary of Inferential Analysis for

Importance of Main Collection Purchases to Academic

Cluster Faculty Members When Budgets are Cut

Ho	Groups	p	Mean Comparisons		
			CLUS_A	CLUS_C	CLUS_B
I_A4	A = Social Sciences				
		.0000	N=34	N=35	N=43
	B = Humanities				
			3.0882	3.6571	4.5116
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

The total three group mean on the degree academic faculty members usually encourage students to use library resources for a critical thought paper (Hypothesis I_B1) was 3.6173 (on a scale 1 2 3-4-5; 1 least often to 5 most often). The F probability was .0042 at alpha .05, indicating significant difference existed between groups on this item. Therefore, null hypothesis I_B1 was rejected.

Cluster C (sciences) faculty members encouraged students less often (2.6842 mean) to use library resources for a critical thought paper assignment than Clusters A (social sciences) and B (humanities) with similar means of 4.0385 and 3.8056, respectively. Scheffe post hoc analysis confirmed significant difference (.05) existed in this study between sciences faculty members and both the social sciences and the humanities faculty members on faculty encouragement of students to use library resources for a critical thought paper assignment. Table 23 summarizes the analysis:

Table 23

Summary of Inferential Analysis or Faculty Responses by Academic Cluster on Encouraging tudents to use Library Resources for the Criticl Thought Paper

Ho		p	Mean Comparisons		
	A = Social Sciences		CLUS_C	CLUS_B	CLUS_A
I_B1	B = Humanities	.0042	N=19	N=36	N=26
	C = Sciences		2.6842	3.8056	4.0385

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Clusters A (social sciences) and B (humanities) faculty members encouraged students to use library resources for a research paper or prospectus assignment more often (means 4.5806 and 4.6053, respectively) than cluster C faculty members at mean 3.6207. The three group F probability was

.0001 at alpha .05. This finding suggested a strong significant difference between groups on this item. Therefore, hypothesis I_B2 was rejected.

Scheffe post hoc analysis confirmed significant difference (.05) existed in this study between the sciences faculty respondents and both the humanities and social sciences faculty respondents on faculty encouragement of students to use library resources for a research paper or prospectus assignment. Table 24 summarizes the analysis:

Table 24

Summary of Inferential Analysis for Faculty by Academic Cluster on Encouraging Students to use Library Resources for the Research Paper or Prospectus

Ho		p	Mean Comparisons		
			CLUS_C	CLUS_B	CLUS_A
I_B2	A = Social Sciences				
		.0001	N=29	N=38	N=31
	B = Humanities				
			3.6207	4.5806	4.6053
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

According the three academic cluster respondents, there was average (3.1176 mean) encouragement of students to use library resources for an oral report assignment. The F probability was .3932 and less than alpha .05 which justified acceptance of null hypothesis I_B3 for this item.

The highest mean, 3.4444, was from cluster B (humanities) while the means for clusters A and C were 3.0000 and 2.9310, respectively. Scheffe post hoc analysis confirmed no significant difference (alpha .05) between any two groups in this study. Table 25 presents the analysis:

Table 25

Summary of Inferential Analysis for Faculty by Academic Cluster on Encouraging Students to use Library Resources for the Oral Report

Ho		p	Mean Comparisons		
			CLUS_C	CLUS_B	CLUS_A
I_B3	A = Social Sciences				
		.3932	N=29	N=29	N=27
	B = Humanities				
			2.9310	3.0000	3.4444
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Encouraging students to use the library for book or journal article review was selected often (3.1429 mean) by the sciences (C) and humanities (3.5357) cluster respondents but less than social sciences (A) respondents. The three group F probability was .0447 at alpha .05, which indicated significant difference between groups on this item. Therefore, null hypothesis I_B4 was rejected.

Scheffe post hoc analysis confirmed significant difference (.05) between the sciences (3.1429) and social sciences (4.1071) respondents on the encouragement of students to use library resources for an oral report assignment. Table 26 summarizes the analysis:

Table 26

Summary of Inferential Analysis for Faculty by Academic Cluster on Encouraging Students to use Library Resources for Book or Journal Review

Ho	Groups	p	Mean Comparisons		
			CLUS_C	CLUS_B	CLUS_A
I_B4	A = Social Sciences				
		.0447	N=28	N=28	N=28
	B = Humanities				
			3.1429	3.5357	4.1071
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Responses from all three academic cluster faculty members were similar on the encouragement of students to use library resources for gathering/interpreting data. The three group F probability was .1044 at alpha .05. This probability indicated no significant difference between the groups. Therefore, null hypothesis I_B5 was accepted.

Although the means of each group were similar, the cluster with the lowest mean (2.6429) was group C (sciences) with "less often" range. Clusters A (social sciences) and B (humanities) were low (3.1786 mean) to mid (3.4194 mean) 3 range, respectively. Scheffe post hoc analysis confirmed no significant difference (alpha .05) between any two groups in this study. Table 27 summarizes the analysis:

Table 27

Summary of Inferential Analysis for Faculty by Academic Cluster on Encouraging Students to use Library Resources for Gathering or Interpreting Data

Ho	Groups	p	Mean Comparisons		
			CLUS_C	CLUS_B	CLUS_A
I_B5	A = Social Sciences B = Humanities C = Sciences	.1044	N=28	N=28	N=31
			2.6429	3.1786	3.4194

Note. Scheffe was used for Oneway ANOVA Mean Comparisons.

Alpha = .05

Hypothesis II

II. There are no significant differences in the responses of The Citadel student majors in the social sciences, the humanities, and the sciences in the study on library use and value?

A. From the checklist below of reasons for library use, indicate how frequently these reasons apply to you.

1. to checkout or use books
2. to use periodicals
3. to use print or computer indexes

4. to study my own textbooks
5. for recreational reading
6. to seek research assistance
7. for interlibrary loan borrowing

B. During Fall, 1991, how valuable have library resources and services been for completing the following assignments?

1. critical thought paper
2. research paper or prospectus
3. oral report
4. book or journal article review
5. gathering or interpreting data

C. For your major field of study, circle the adequacy of service assistance and library holdings listed.

1. reference librarian
2. microfilm/microfiche
3. catalog (ATLAS)
4. reserves/circulation
5. interlibrary loan
6. periodicals/journals
7. books

The total mean (on a 1-2-3-4-5 scale; 1 least frequent to 5 most frequent) for the three groups as majors in academic clusters "to checkout or to use books" was 3.1314. The F probability was .0056 at alpha .05, a significant difference between groups on this item. The null hypothesis II_A1 was rejected.

The sciences cluster (C) students used the library less frequently (mean 2.7885) to check out or use books than students of clusters A (social sciences) and B (humanities) at means 3.0172 and 3.5882, respectively.

Scheffe post hoc analysis (.05) suggested evidence to support a significant difference in this study between students of the humanities and the students of both the social sciences and the sciences in the frequency of library use to checkout or use books. Table 28 summarizes the analysis:

Table 28

Summary of Inferental Analysis for Students by Academic Cluster to Use Library to Checkout or Use Books

Ho	Groups	p	Mean Comparisons		
			CLUS_C	CLUS_A	CLUS_B
II_A1	A = Social Sciences				
		.0056	N=52	N=116	N=68
	B = Humanities				
			2.7885	3.0172	3.5882
	C = Sciences				

NOTE. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

The total (3.0661) mean (on a 1-2-3-4-5 scale; 1 least frequent to 5 most frequent) for the three groups seemed to indicate that respondents used the library frequently "to use periodicals". The F probability was .0004 at alpha .05. This probability was considerably less than .05, suggesting a significant difference between groups on this item. The null hypothesis II_A2 was rejected.

The means of each group indicated that students of groups C (sciences) and B (humanities) responded similarly in the middle 2 (less frequent) range. The group A (social sciences) mean was 3.4034. Scheffe post hoc analysis (.05) suggested evidence supporting a significant difference in this study between students of the social sciences and both the sciences and the humanities the in frequency of library use to use periodicals. Table 29 summarizes the analysis:

Table 29

Summary of Inferential Analysis for Students by Academic Clusters to Use the Library to Use Periodicals

Ho	Groups	p	Mean Comparisons		
			CLUS_B	CLUS_C	CLUS_A
II_A2	A = Social Sciences				
		.0004	N=63	N=45	N=119
	B = Humanities				
			2.6667	2.7333	3.4034
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

"To use print or computer indexes" was a less frequent reason for the three groups of respondents to use the library. The F probability was .0100 at alpha .05, indicating a significant difference between groups on this item. Therefore, null hypothesis II_A3 was rejected.

The means (on a 1-2-3-4-5 scale; 1 least frequent to 5 most frequent) of each group indicated that students of clusters A (social sciences) and B (humanities) used the library less frequently for print or computer indexes (means 2.6961 and 2.3500, respectively), while cluster C (sciences) students responded "least frequent" (mean 1.8211). Scheffe post hoc analysis confirmed significant difference (.05) with evidence suggesting significant difference in this study between students of the social sciences and sciences in the frequency of library use of print or computer indexes. Table 30 summarizes the analysis:

Table 30

Summary of Inferential Analysis for Students by Academic Clusters to Use Library Print or Computer Indexes

Ho	Groups	p	Mean Comparisons		
			CLUS_C	CLUS_B	CLUS_A
II_A3	A = Social Sciences				
		.0100	N=38	N=60	N=102
	B = Humanities				
			1.9211	2.3500	2.6961
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

According to total (2.7867) group means (on a 1-2-3-4-5 scale; 1 least frequent to 5 most frequent), all majors in the three clusters responded less frequent to using the library "to study my own textbooks". The F probability was .0233 at alpha .05, indicating a significant difference between groups on this item. The null hypothesis II_A4 was rejected.

The social sciences (A) mean (2.6168) and the humanities (B) mean (2.6724) were similar, while the sciences (C) mean was 3.3261. Scheffe post hoc analysis confirmed significant difference (.05) with evidence supporting a significant statistical difference in this study between students of the social sciences and sciences in the frequency of library use to study textbooks. Table 31 summarizes the analysis:

Table 31

Summary of Inferential Analysis for Students by Academic Clusters to Use Library to Study Their Textbooks

Ho	Groups	p	Mean Comparisons		
			CLUS_A	CLUS_B	CLUS_C
II_A4	A = Social Sciences				
		.0233	N=107	N=58	N=46
	B = Humanities				
			2.6168	2.6724	3.3261
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Responses from the three groups on how frequently you use the library "for recreational reading" was a 2.3696 group mean (on a 1-2-3-4-5 scale; 1 least frequent to 5 most frequent). The F probability (.4709) for this statement was greater than alpha .05. This probability indicated no significant difference exists between the groups. The null hypothesis II_A5 was accepted.

The means of each group indicate that student responses from all groups were similar with the social sciences responding less likely (mean 2.444) to use the library for recreational reading than the humanities and sciences students in this study. A Scheffe post hoc analysis was no two groups significantly differ (.05). Table 32 summarizes the analysis:

Table 32

Summary of Inferential Analysis for Students by Academic Clusters to Use Library for Recreational Reading

Ho	Groups	p	Mean Comparisons		
			CLUS_A	CLUS_C	CLUS_B
II_A5	A = Social Sciences				
		.4709	N=90	N=41	N=53
	B = Humanities				
			2.2444	2.4878	2.4906
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons.
Alpha .05

The total group mean (on a 1-2-3-4-5 scale; 1 least frequent to 5 most frequent) of frequency to use the library "to seek research assistance" for all three clusters was 3.3304. The F probability was .0369 at alpha .05, indicating a significant difference between groups on this item. The null hypothesis II_A6 was rejected.

The means of each group indicated that students of groups A (social sciences) and B (humanities) responded similarly at 3.3421 and 3.5692, respectively. The group C (sciences) mean was lowest at 2.9556. Scheffe post hoc analysis confirmed a significant statistical difference (.05) in this study between students of the sciences and humanities on the frequency to use the library for research assistance. Table 33 summarizes the analysis:

Table 33

Summary of Inferential Analysis for Students by Academic Clusters to Use Library to Seek Research Assistance

Ho	Groups	p	Mean Comparisons		
			CLUS_C	CLUS_A	CLUS_B
II_A6	A = Social Sciences				
		.0369	N=45	N=114	N=65
	B = Humanities				
			2.9556	3.3421	3.5692
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

According to total (1.7122) mean of the groups (on a 1-2-3-4-5 scale; 1 least frequent to 5 most frequent), the frequency to use the library "for interlibrary loan" was least frequent. The three group F probability was .1638 at alpha .05, indicating no significant difference between any two groups on this item. The null hypothesis II_A7 was accepted.

The means of each group indicated that responses for groups were similar. All responses were in the 1 (least frequent) range with the sciences less likely (mean 1.3913) to use the library for interlibrary borrowing. Scheffe post hoc analysis confirmed no significant difference (.05) between any two groups in this study. Table 34 summarizes the analysis:

Table 34

Summary of Inferential Analysis for Students by Academic Clusters to Use Library for Interlibrary Loan

Ho	Groups	p	Mean Comparison		
			CLUS_C	CLUS_B	CLUS_A
II_A7	A = Social Sciences				
		.1638	N=23	N=42	N=74
	B = Humanities				
			1.3913	1.6429	1.8514
	C = Sciences				

NOTE. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

When asked how valuable library resources and services have been for completing assignments on a "critical thought paper," the response mean (on a 1-2-3-4-5 scale; 1 least often to 5 most often) for the three groups was 3.0870. The F probability was .3344 and greater than alpha .05. This probability indicated no significant difference between groups on this item. The null hypothesis II_B1 was accepted.

The means of each group indicate that responses were similar. Respondents of group A (social sciences) selected less often (2.9872), while the sciences (C) and humanities B) were neutral with means of 3.0870 or 3.3654, respectively. Scheffe post hoc analysis confirmed no significant difference (alpha .05) between any two groups on how valuable library resources and services have been for completing assignments in this study. Table 35 summarizes the analysis:

Table 35

Summary of Inferential Analysis for Value Students by Academic Clusters Place in Library Resources and Services for Completing a Critical Thought Paper

Ho	Groups	p	Mean Comparison		
			CLUS_A	CLUS_C	CLUS_B
II_B1	A = Social Sciences				
		.3344	N=78	N=23	N=52
	B = Humanities				
			2.9872	3.0870	3.3654
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons.
Alpha = .05

The total group mean (on a 1-2-3-4-5 scale; 1 least often to 5 most often) value of library resources and services for completing an assignment on a "research paper or prospectus" was 3.9846. The F probability was .0125 at alpha .05. This probability was a significant difference between groups on this item. The null hypothesis II_B2 was rejected.

The means of each group indicated that responses were similar. The highest mean (4.3182) was group B (humanities) while the lowest mean was C (sciences) at 3.7667. Scheffe post hoc analysis confirmed significant difference (.05) existed in this study between students in the social sciences and humanities on how valuable library resources were for completing a term paper or prospectus assignment. Table 36 summarizes the analysis:

Table 36

Summary of Inferential Analysis for Value Students by Academic Clusters Place in Library Resources and Services for Completing a Research Paper or Prospectus

Ho	Groups	p	Mean Comparison		
			CLUS_C	CLUS_A	CLUS_B
II_B2	A = Social Sciences				
		.0125	N=30	N=99	N=66
	B = Humanities				
			3.7667	3.8283	4.3182
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Responses from the three groups on the value of library resources and services for completing an "oral report" assignment was at mean 2.3893 (on a 1-2-3-4-5 scale; 1 least often to 5 most often). The F probability was .1734 at alpha .05, indicating no significant difference between groups on this item. The null hypothesis II_B3 was accepted.

The means of each group indicated that responses were similar. The lower (2.1429) less often of the humanities (B) was comparable to the social sciences (A) at 2.3750. The sciences (C) was 2.7918. Scheffe post hoc analysis confirmed no significant difference (.05) between any two groups in the study. Table 37 summarizes the analysis:

Table 37

Summary of Inferential Analysis for Value Students by Academic Clusters Place in Library Resources and Services for Completing an Oral Report

Ho	Groups	p	Mean Comparison		
			CLUS_B	CLUS_A	CLUS_C
II_B3	A = Social Sciences B = Humanities C = Sciences	.0125	N=35 2.1429	N=72 2.3750	N=24 2.7917

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

The value of library resources and services for completing an assignment on a "book/journal article review" was average (3.3168) for all three clusters by majors. The F probability was .7608 at alpha .05, indicating no significant difference between groups on this item. The null hypothesis II_B4 was accepted.

The means (on a 1-2-3-4-5 scale; 1 least often to 5 most often) of each group indicate that responses were very similar within the 3 (often) response range. Respectively, the means were 3.2041, 3.3462 and 3.3721 for the humanities, sciences and social sciences. Scheffe post hoc analysis confirmed no significant statistical difference (.05) between any two groups in this study. Table 38 summarizes the analysis:

Table 38

Summary of Inferential Analysis for Value Students by Academic Clusters Place in Library Resources and Services for Completing a Book/Journal Article Review

Ho	Groups	p	Mean Comparison		
			CLUS_B	CLUS_C	CLUS_A
II_B4	A = Social Sciences				
		.7608	N=49	N=26	N=86
	B = Humanities				
			3.2041	3.3462	3.3721
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons.
Alpha = .05

Analysis of responses (on a 1-2-3-4-5 scale; 1 least often to 5 most often) from the three groups on the value of library resources and services for completing an assignment involving "gathering or interpreting data" was normal for all groups. The F probability was .5209 at alpha .05, indicating no significant difference between groups on this item. The null hypothesis II_B5 was accepted.

The means of each group indicate that responses were very similar within the 3 (often) response range. Cluster C (sciences) was lower (3.2574) than B (humanities) at 3.4918 with the A (social sciences) lowest at 3.3529. Scheffe post hoc analysis confirmed no significant difference (.05) in this study between any two groups for the value of library resources and services in gathering or interpreting data. Table 39 summarizes the analysis:

Table 39

Summary of Inferential Analysis for Value Students by Academic Clusters Place in Library Resources and Services for Gathering or Interpreting Data

Ho	Groups	p	Mean Comparison		
			CLUS_A	CLUS_C	CLUS_B
II_B5	A = Social Sciences B = Humanities C = Sciences	.5209	N=101 3.2574	N=34 3.3529	N=61 3.4918

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Mean responses from the three groups judged reference librarian assistance "neutral" or adequate to their major field of study. The F probability was .0247 at alpha .05, indicating significant difference existed between groups on this item. The null hypothesis II_C1 was rejected.

The means (on a 1-2-3-4-5 scale; 1 least adequate to 5 most adequate) of each group indicate that responses were similar. Mean responses for clusters B (humanities) and A (social sciences) were in the upper 3 (adequate) range, 3.9841 and 3.8276, respectively. The lowest mean was group C (sciences) at 3.3947. Scheffe post hoc analysis confirmed significant difference (.05) existed in this study between students of the sciences and humanities on reference librarian assistance. Table 40 summarizes the analysis:

Table 40

Summary of Inferential Analysis for Students by Academic Cluster on the Adequacy of Reference Librarian Assistance to Field of Study

Ho	Groups	p	Mean Comparison		
			CLUS_C	CLUS_A	CLUS_B
II_C1	A = Social Sciences				
		.0247	N=38	N=116	N=63
	B = Humanities				
			3.3947	3.8276	3.9841
	C = Sciences		________	________	
				________	________

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

According to the total three group mean (3.1364), responses (on a 1-2-3-4-5 scale; 1 least adequate to 5 most adequate) on the adequacy of "microfilm/microfiche service assistance and holdings" to your major field of study were in the lower half of 3 (adequate). The F probability was .7094 at alpha .05, indicating no significant difference between groups on this item. The null hypothesis II_C2 was accepted.

The means of each group indicated that responses were similar. Mean responses for group B (humanities) and C (sciences) were 3.2037 and 3.3333, respectively. Cluster A (social sciences) mean was 3.3786. Scheffe post hoc analysis confirmed no two clusters in academic majors in this study were significantly different (.05) on the adequacy of microfilm/microfiche assistance and for their major area of study. Table 41 summarizes the analysis:

Table 41

Summary of Inferential Analysis for Students by Academic Cluster on the Adequacy of Microfilm/Fiche Assistance to Field of Study

Ho	Groups	p	Mean Comparison		
			CLUS_B	CLUS_C	CLUS_A
II_C2	A = Social Sciences				
		.7094	N=54	N=33	N=103
	B = Humanities				
			3.2037	3.3333	3.3786
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

The total (3.1364) mean (on a 1-2-3-4-5 scale; 1 least adequate to 5 most adequate) for the three groups seemed to indicate that respondents saw the adequacy of the library "catalog (ATLAS) assistance" to your major field of study as a low average. The F probability was .4745 at alpha .05, indicating no significant difference between groups on this item. The null hypothesis II_C3 was accepted.

The means of each group indicated that responses were similar. The highest mean was cluster C (sciences) at 3.3143 and the lowest mean (3.0235) was (social sciences). Scheffe post hoc analysis confirmed no two groups were significantly different (.05) in this study on student perception of catalog (ATLAS) assistance to their major field of study. Table 42 summarizes the analysis:

Table 42

Summary of Inferential Analysis for Students by Academic Cluster on the Adequacy of Library Catalog (ATLAS) Assistance to Field of Study

Ho	Groups	p	Mean Comparison		
			CLUS_A	CLUS_B	CLUS_C
II_C3	A = Social Sciences				
		.4745	N=85	N=56	N=35
	B = Humanities				
			3.0235	3.1964	3.3143
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Judging from total (3.1955) three groups mean (on a 1-2-3-4-5 scale; 1 least adequate to 5 most adequate) student perception of adequacy of "reserves/circulation assistance" to your major field of study routine. The F probability was .6855 at alpha .05, indicating no significant difference between groups on this item. The null hypothesis II_C4 was accepted.

The means of each group indicate that responses were similar. Group mean (3.2632) was highest for A (social sciences) and lowest for C (sciences) at mean 3.0690.

Scheffe post hoc analysis confirmed no two groups were significantly different (.05) in this study on student perception of circulation/reserves assistance for your major field of study. Table 43 summarizes the analysis:

Table 43

Summary of Inferential Analysis for Students by Academic Cluster on the Adequacy of Reserves/Circulation Assistance to Field of Study

Ho	Groups	p	Mean Comparison		
			CLUS_C	CLUS_B	CLUS_A
II_C4	A = Social Sciences				
		.6855	N=29	N=55	N=95
	B = Humanities				
			3.0690	3.1455	3.2632
	C = Sciences				

Note. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Three groups' mean (on a 1-2-3-4-5 scale; 1 least adequate to 5 most adequate) on the adequacy of "interlibrary loan assistance" to your major field of study was 2.8425. The F probability was .6583 at alpha .05, indicating no significant difference between groups on this item. The null hypothesis II_C5 was accepted.

The means of each group indicated that responses were similar with groups B (humanities) and A (social sciences) means 2 (less adequate), 2.6905 and 2.8955, respectively. Group C (sciences) was 3.000. Scheffe post hoc analysis confirmed no two groups in this study were significantly different (.05) for respondents in clusters by sciences, humanities and social sciences majors. Table 44 summarizes the analysis:

Table 44

Summary of Inferential Analysis for Students by Cluster on the Adequacy of Interlibrary Loan Assistance to Field of Study

Ho	Groups	p	Mean Comparison		
			CLUS_B	CLUS_A	CLUS_C
II_C5	A = Social Sciences				
		.6583	N=42	N=67	N=18
	B = Humanities				
			2.6905	2.8955	3.0000
	C = Sciences				

NOTE. Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

"Periodicals/journals holdings" to your major field of study were adequate (on a 1-2-3-4-5 scale; 1 least adequate to 5 most adequate) for the three groups (mean 3.5139). The F probability was .2905 at alpha .05, indicating no significant difference between groups on this item. The null hypothesis II_C6 was accepted.

The means of each group indicate that responses were similar. All group means were in mid 3 (adequate) range with the highest group A (social sciences) at mean 3.6379 and lowest B (humanities) at 3.333. Scheffe post hoc analysis confirmed no two groups were significantly different (.05) in this study on students in sciences, social sciences and humanities clusters on the adequacy of library periodicals or journals holdings to their major area of study. Table 45 summarizes the analysis:

Table 45

Summary of Inferential Analysis for Students by Academic Cluster on the Adequacy of Periodicals/Journals Holdings to Field of Study

Ho	Groups	p	Mean Comparison		
			CLUS_B	CLUS_C	CLUS_A
II_C6	A = Social Sciences				
		.6583	N=63	N=37	N=116
	B = Humanities				
			3.3333	3.4324	3.6379
	C = Sciences				

Noteu Scheffe was used for Oneway ANOVA Mean Comparisons.
Alpha = .05

According to responses (on a 1-2-3-4-5 scale; 1 least adequate to 5 most adequate) of the three groups, group B (humanities) judged (mean 4.0597) "library books holdings" for your major field of study were more adequate than the sciences or social sciences. The F probability was .0204 at alpha .05, indicating significant difference existed between groups on this item. The null hypothesis II_C7 was rejected.

The means of groups A (social sciences and C (sciences) indicate responses at 3.5856 and 3.4742, respectively. Scheffe post hoc analysis confirmed significant difference

(.05) existed in this study between students' opinions in the social sciences and humanities on the adequacy of library books holdings for their major field of study. Table 46 summarizes the analysis:

Table 46

Summary of Inferential Analysis for Students by Academic Cluster on the Adequacy of Library Books Holdings to Field of Study

Ho	Groups	p	Mean Comparison		
		.0224	CLUS_A	CLUS_C	CLUS_B
II_C7	A = Social Sciences				
		.0224	N=111	N=43	N=67
	B = Humanities				
			3.5856	3.3742	4.0597
	C = Sciences				

NOTE. Scheffe was used for Oneway ANOVA Mean Comparisons.
Alpha = .05

Hypothesis III

III. There are no significant differences in the responses of The Citadel lower-level undergraduate students (freshmen and sophomores), upper-level undergraduate students (juniors and seniors), and graduate students in this study on information needs assessment and library use instruction:

A. Acquiring information is important to my coursework and/or job performance.

B. In gathering information in the library, indicate the degree you "found what you needed" because of your

1. research ability,
2. browsing or luck, or
3. urgent need to find the information.

C. When unable to find what I need in the library, I normally conclude that the library does not have the information.

D. How important to you are the following methods in gathering information for courses?

1. reading journals in your field
2. reading journals in other fields
3. searching library catalogs
4. locating citations in sources
5. consulting a reference librarian
6. browsing library shelves

7. using indexes or abstracts
8. reading reviews or abstracts

E. To what degree can you determine (on your own) the value or relevance of a source to your research task?

F. When unable to determine the value or relevance of a source on your own, indicate the degree you normally seek
   1. no assistance to evaluate,
   2. reference librarian assistance,
   3. class professor assistance, or
   4. friend/colleague assistance.

G. How useful would the following methods of finding information be for your needs?
   1. library how-to-handouts
   2. self-paced library workbook exercises
   3. in-class visiting lecturer
   4. in-library conducted instruction
   5. information from classroom professor
   4. computer help screens
   5. help as needed from a reference librarian

Table 47 presents analysis of responses (on a 1-2-3-4-5 scale; 1 strongly disagree to 5 strongly agree) from three groups of students in class standing by clusters on the agreement (mean 4.1621) that "acquiring information is important to my coursework or job performance". The F probability was .0150 at alpha .05, indicating significant difference existed between groups on this item. The null hypothesis III_A was rejected. Group A (freshmen and sophomores) registered a "more agree" mean (4.0396), while group C (graduate students) mean was 4.4375. Scheffe post hoc analysis (.05) suggested evidence to support a significant difference in this study between lower-level undergraduate students and graduate students on the importance of acquiring information to my coursework and/or job performance.

Table 47

Summary of Inferential Analysis for Students by Class Standing on Importance of Acquiring Information for Coursework and/or Job Performance

Ho	Groups	p	Mean Comparison		
	A =	.0309	A	B	C
III_A	Lower Undergraduates				
	B =		N=101	N=88	N=64
	Upper Undergraduates				
	C =		4.0396	4.1023	4.4375
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons.
Alpha = .05

The analysis of responses (on a 1-2-3-4-5 scale; 1

lowest to 5 highest) from three groups on the degree you found what you needed because of your research ability was neutral (mean 3.6480). The F probability was .1426 at alpha .05, indicating no significant difference existed between groups on this item. The null hypothesis III_B1 was accepted.

Group B (upper undergraduates) registered the mean 3.5444, while group B (lower undergraduates) mean was 3.6095. Scheffe post hoc analysis (.05) suggested evidence to support no significant difference in this study between any two groups on the degree students found what was needed because of their research ability. Table 48 summarizes the analysis:

Table 48

Summary of Inferential Analysis for Students by Class Standing on the Degree that Students Found What was Needed Because of Research Ability

Ho	Groups	p	Mean Comparison		
	A =	.1426	B	A	C
III_B1	Lower Undergraduates				
	B =		N=90	N=105	N=55
	Upper Undergraduates				
	C =		3.5444	3.6095	3.8909
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Responses (on a 1-2-3-4-5 scale; 1 lowest to 5 highest) from three groups on the degree you found what you needed because of your "browsing or luck" was mean 2.4344. The F probability was .9326 at alpha .05, indicating no significant difference existed between groups on this item. The null hypothesis III_B2 was accepted.

Group A (upper undergraduates) registered mean 2.4051, while group A (lower undergraduates) mean was 2.4681. The graduate students' mean was 2.4167. Scheffe post hoc analysis (.05) suggested evidence to support no significant difference in this study between any two groups on the degree students found what was needed because of browsing or luck. Table 49 summarizes the analysis:

Table 49

Summary of Inferential Analysis for Students by Class Standing on the Degree that Students Found What was Needed Because of Browsing or Luck

Ho	Groups	p	Mean Comparison		
	A =	.9326	B	C	A
III_B2	Lower Undergraduates				
	B =		N=79	N=48	N=94
	Upper Undergraduates				
	C =		2.4051	2.4167	2.4681
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

An "urgent need to find the information" was not a high mean (3.5975) response (on a 1-2-3-4-5 scale; 1 lowest to 5 highest) from three groups on the degree you found what you needed. The F probability was .4123 at alpha .05, indicating no significant difference existed between groups on this item. The null hypothesis III_B3 was accepted. Group C (graduate students) registered the "lower" (mean 3.4286), while the group B (upper undergraduates) mean was 3.5843. Scheffe post hoc analysis (.05) suggested evidence to support no significant difference in this study between students any two groups on the degree students found what was needed because of the urgent need to find the information. Table 50 summarizes the analysis:

Table 50

Summary of Inferential Analysis for Students by Class Standing on the Degree that Students Found What was Needed Because of Urgent Need to Find Information

Ho	Groups	p	Mean Comparison		
	A =	.4123	C	B	A
III_B3	Lower Undergraduates				
	B =		N=49	N=89	N=98
	Upper Undergraduates				
	C =		3.4286	3.5843	3.6939
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha =.05

Students in groups by class standing answered a lower (2.2035) mean (on a 1 2-3-4-5 scale; 1 lowest to 5 highest) to "when unable to find what I need in the library, I normally conclude that the library does not have the information". The F probability was .0220 at alpha .05, indicating significant difference existed between groups on this item. The null hypothesis III_C was rejected.

Undergraduates responded similarly with 2.1648 for group B (juniors or seniors) and 2.2095 for group A (freshmen or sophomores), while the graduate students (group C) mean was 2.6721. Scheffe post hoc analysis (.05) suggested evidence to support a significant difference in this study between juniors/seniors and graduate students on concluding the library did not have the information when they were unable to find what they need. Table 51 summarizes the analysis:

Table 51

Summary of Inferential Analysis for Students by Class Standing on the Degree that Students Conclude Library Does not Have What They Have Been Unable to Find

Ho	Groups	p	Mean Comparison		
	A =	.0220	B	A	C
III_C	Lower Undergraduates				
	B =		N=91	N=105	N=61
	Upper Undergraduates				
	C =		2.1648	2.2095	2.6721
	Graduate Students		________	________	
				________	________

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

On the issue of the importance to you of "reading journals in your field" for gathering information for courses, mean response (on a 1-2-3-4-5 scale; 1 least important to 5 most important) from the three groups was 3.4815. The F probability was .0000 at alpha .05, indicating considerably significant difference existed between groups on this item. The null hypothesis III_D1 was rejected.

Group C (graduate students) registered a higher mean (4.2724), while group A (lower undergraduates) mean which was 3.1789 was less than group B (upper undergraduates) at

3.2442. Scheffe post hoc analysis (.05) suggested evidence to support significant difference in this study between all undergraduate students and graduate students on the importance of reading journals in your field in gathering information for courses. Table 52 summarizes the analysis:

Table 52

Summary of Inferential Analysis for Students by Class Standing on the Importance of Reading Journals in Your Field in Gathering Information for Classes

Ho	Groups	p	Mean Comparison		
	A =	.0000	A	B	C
III_D1	Lower Undergraduates				
	B =		N=95	N=86	N=62
	Upper Undergraduates				
	C =		3.1789	3.2442	4.2742
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Less importance (on a 1-2-3-4-5 scale; 1 least important to 5 most important) was placed on "reading journals in other fields" for gathering information for courses by all three groups (total mean 2.1667). The F probability was .0001 at alpha .05, indicating considerably significant difference existed between groups on this item. The null hypothesis III_D2 was rejected.

Group C (graduate students) registered mean 2.7143, while group A (lower undergraduates) mean was 2.0225 which was greater than group B (upper undergraduates) at 1.9351. Scheffe post hoc analysis (.05) suggested evidence to support significant difference in this study between undergraduates and graduate students on the importance of reading journals in other fields for courses. Table 53 summarizes analysis:

Table 53

Summary of Inferential Analysis for Students by Class Standing on the Importance of Reading Journals in Other Fields in Gathering Information for Classes

Ho	Groups	p	Mean Comparison		
	A =	.0001	B	A	C
III_D2	Lower Undergraduates				
	B =		N=77	N=89	N=56
	Upper Undergraduates				
	C =		1.9351	2.0225	2.7143
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

According to total mean (2.9826) for the three groups of respondents, "searching library catalogs" was less important (on a 1-2-3-4-5 scale; 1 least important to 5 most important) for gathering information for courses. The F probability was .1995 at alpha .05, indicating no significant difference existed between groups on this item. The null hypothesis III_D3 was rejected.

Junior/senior students judged (mean 2.8052) "searching library catalogs" less important than (A) freshman/sophomore (mean 3.0102) and graduate students (mean 3.1818). Scheffe post hoc analysis (.05) suggested evidence to support no significant difference in this study between students for all groups on the importance of searching library catalogs in gathering information. Table 54 summarizes the analysis:

Table 54

Summary of Inferential Analysis for Students by Class Standing on the Importance of Searching Library Catalogs in Gathering Information for Classes

Ho	Groups	p	Mean Comparison		
	A =	.1995	B	A	C
III_D3	Lower Undergraduates				
	B =		N=77	N=98	N=55
	Upper Undergraduates				
	C =		2.8052	3.0102	3.1818
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Group total mean (on a 1-2-3-4-5 scale; 1 least important to 5 most important) for "locating citations of sources," was 3.0178. The F probability was .0340 at alpha .05, indicating significant difference existed between groups on this item. The null hypothesis III_D4 was rejected.

Freshman/sophomore respondents answered that locating citations of sources was less important (2.8846) but to a higher degree (2.9111) than junior/senior respondents. Graduate student responses were 3.3684.

Scheffe post hoc analysis (.05) suggested evidence to support no significant difference in this study between any two groups of students on the importance of locating citations of sources in gathering information for courses. Table 55 summarizes the analysis:

Table 55

Summary of Inferential Analysis for Students by Class Standing on the Importance of Locating Citations of Sources in Gathering Information for Classes

Ho	Groups	p	Mean Comparison		
	A =	.0340	B	A	C
III_D4	Lower Undergraduates				
	B =		N=78	N=90	N=57
	Upper Undergraduates				
	C =		2.8846	2.9111	3.3684
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

According to total mean (2.9826) for the three groups of respondents, "consulting a reference librarian" was (on a 1-2-3-4-5 scale; 1 least important to 5 most important) neutral for gathering information for courses. The F probability was .2973 at alpha .05, indicating no significant difference existed between groups on this item.

The null hypothesis III_D5 was rejected.

Junior/senior students (B) judged (mean 3.6136) consulting a reference librarian for gathering information for courses less than freshman and sophomore students (3.6458). Graduate students considered the importance even greater at a .8983 mean. Scheffe post hoc analysis (.05) suggested evidence to support no significant difference in this study between students on the importance of consulting a reference librarian in gathering information for courses. Table 56 summarizes the analysis:

Table 56

Summary of Inferential Analysis for Students by Class Standing on the Importance of Consulting a Reference Librarian in Gathering Information for Classes

Ho	Groups	p	Mean Comparison		
	A =	.2973	B	A	C
III_D5	Lower Undergraduates				
	B =		N=88	N=96	N=59
	Upper Undergraduates				
	C =		3.6136	3.6458	3.8983
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons.

Alpha = .05

Responses to "browsing library shelves" for gathering information for courses was less important (on a 1-2-3-4-5 scale; 1 least important to 5 most important) to all three groups of students in clusters by class standing. The F probability was .7637 at alpha .05, indicating no significant difference existed between groups on this item. The null hypothesis III_D6 was accepted.

All groups were similar in responses, but graduate students used (2.2931) the method less than freshman and sophomore students (2.4176) or junior and senior students (2.4512). Scheffe post hoc analysis (.05) indicated no significant difference in this study between students on the importance of browsing library shelves in gathering information for courses. Table 57 summarizes:

Table 57

Summary of Inferential Analysis for Students by Class Standing on the Importance of Browsing Library Shelves in Gathering Information for Classes

Ho	Groups	p	Mean Comparison		
	A =	.7637	C	A	C
III_D6	Lower Undergraduates				
	B =		N=58	N=91	N=82
	Upper Undergraduates				
	C =		2.2931	2.4176	2.4512
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

When asked the importance of "using indexes and abstracts" in gathering information for courses, the three groups' mean (on a 1-2-3-4-5 scale; 1 least important to 5 most important) was 3.3686. The F probability was .0004 at alpha .05. This result was considerably less than .05, indicating significant difference existed between groups on this item. The null hypothesis III_D7 was rejected.

All three groups of students in clusters by standing were similar in responses, but upper-level undergraduates used the method less than freshman and sophomore students

(3.0235), while graduate students followed most at (3.8448). Scheffe post hoc analysis (.05) indicated significant difference in this study between junior/senior students and graduates on the importance of using indexes and abstracts in gathering information. Table 58 summarizes the analysis:

Table 58

Summary of Inferential Analysis for Students by Class Standing on the Importance of Using Indexes and Abstracts in Gathering Information for Classes

Ho	Groups	p	Mean Comparison		
	A =	.0004	B	A	C
III_D7	Lower Undergraduates				
	B =		N=85	N=93	N=58
	Upper Undergraduates				
	C =		3.0235	3.3871	3.8448
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

In gathering information for courses, means indicated "reading reviews" was less important (on a 1-2-3-4-5 scale; 1 least important to 5 most important) to undergraduate students (2.8889 for juniors/seniors and 2.9438 for freshmen/sophomores) than graduate students (3.6182). The F probability was .0032 at alpha .05, indicating significant difference existed between groups on this item. The null hypothesis III_D8 was rejected.

Scheffe post hoc analysis (.05) indicated significant difference in this study between graduate students and both lower and upper undergraduates on the importance of reading reviews in gathering information for courses. Table 59 summarizes the analysis:

Table 59

Summary of Inferential Analysis for Students by Class Standing on the Importance of Reading Reviews in Gathering Information for Classes

Ho	Groups	p	Mean Comparison		
	A =	.0032	B	A	C
III_D8	Lower Undergraduates				
	B =		N=81	N=89	N=55
	Upper Undergraduates				
	C =		2.8889	2.9438	3.6182
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Total mean response (on a 1-2-3-4-5 scale; 1 lowest to 5 highest) from the three groups of students on the degree "you can determine (on your own) the value or relevance of a source to your research task" was 3.9756. The F probability was .2222 at alpha .05, indicating no significant difference existed between groups on this item. The null hypothesis III_E was accepted. According to group mean, B (upper undergraduates) and C (graduate students) responded higher, while the group A (lower undergraduates) mean was 3.8800. Scheffe post hoc analysis (.05) suggested evidence to support no significant difference in this study between student respondents on their ability to determine the value or relevance of a source to their research task. Table 60 summarizes the analysis:

Table 60

Summary of Inferential Analysis for Students by Class Standing on Degree that Students Can Determine the Value/Relevance of a Source to Their Research

Ho	Groups	p	Mean Comparison		
	A =	.2222	A	B	C
III_E	Lower Undergraduates				
	B =		N=100	N=86	N=60
	Upper Undergraduates				
	C =		3.8800	4.0349	4.0500
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

Indicating what degree respondents sought "no assistance to evaluate" when unable to determine the value or relevance of a source was at lower (on a 1-2-3-4-5 scale; 1 lowest to 5 highest) response (mean 2.1441) for all three groups of students by class standing. The F probability was .8353 at alpha .05, indicating no significant difference existed between groups on this item. The null hypothesis III_F1 was rejected.

All three groups answered similarly with graduates at a 2.0577 mean, lower undergraduates second with 2.1505 and juniors and seniors at 2.1948. Scheffe post hoc analysis (.05) indicated no significant difference in this study between any group members on seeking no assistance to evaluate a source when unable to determine the value or relevance on their own. Table 61 summarizes the analysis:

Table 61

Summary of Inferential Analysis for Students by Class Standing on: Seek No Assistance to Evaluate When Unable to Determine the Value or Relevance of a Source

Ho	Groups	p	Mean Comparison		
	A =	.8353	C	A	C
III_F1	Lower Undergraduates				
	B =		N=52	N=93	N=77
	Upper Undergraduates				
	C =		2.0577	2.1505	2.1948
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons.
Alpha = .05

Seeking "reference librarian assistance" when unable to determine the value or relevance of a source had a total group mean of 3.8431 (on a 1 2 3-4-5 scale; 1 lowest to 5 highest). The F probability was .6991 at alpha .05, indicating no significant difference existed between groups on this item. The null hypothesis III_F2 was rejected.

All three groups answered similarly with graduates registering at 2.7931, lower undergraduates at 3.8019 and upper undergraduates at 3.9231. Scheffe post hoc analysis (.05) indicated no significant difference in this study between any two group members on seeking reference librarian assistance when unable to determine the value or relevance of a source. Table 62 summarizes the analysis:

Table 62

Summary of Inferential Analysis for Students by
Class Standing on: Seek Reference Librarian Assistance
When Unable to Determine the Value or Relevance of a Source

Ho	Groups	p	Mean Comparison		
	A =	.6991	C	A	C
III_F2	Lower Undergraduates				
	B =		N=58	N=106	N=91
	Upper Undergraduates				
	C =		3.7931	3.8019	3.9231
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons.
Alpha = .05

When unable to determine the value or relevance of a source, total group mean for "seeking class professor assistance" was 3.8431 (on a 1-2-3-4-5 scale; 1 least important to 5 most important). The F probability was .8859 at alpha .05, indicating no significant difference existed between groups on this item. The null hypothesis III_F3 was rejected.

All three groups answered similarly with graduates registering at 3.2364, lower undergraduates at 3.2929 and upper undergraduates at 3.3409. Scheffe post hoc analysis

(.05) indicated no significant difference in this study between any two groups on seeking class professor assistance when unable to determine the value or relevance of a source. Table 63 summarizes the analysis:

Table 63

Summary of Inferential Analysis for Students by Class Standing on: Seek Class Professor Assistance When Unable to Determine the Value or Relevance of a Source

Ho	Groups	p	Mean Comparison		
	A =	.8859	C	A	C
III_F3	Lower Undergraduates				
	B =		N=55	N=99	N=88
	Upper Undergraduates				
	C =		3.2364	3.2929	3.3409
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

The total group mean for respondents by class standing clusters who seek "friend or colleague assistance" when unable to determine the value or relevance of a source was mean 3.3765 (on a 1-2-3-4-5 scale; 1 lowest to 5 highest). The F probability was .2144 at alpha .05, indicating no significant difference existed between groups on this item.

The null hypothesis III_F4 was rejected.

All three groups answered similarly with graduate students registering lower (3.1429) than freshmen/sophomores (3.3922) or juniors/seniors at 3.5056. Scheffe post hoc analysis (.05) indicated no significant difference in this study between any two group members on seeking friend or colleague assistance when unable to determine the value or relevance of a source. Table 64 summarizes the analysis:

Table 64

Summary of Inferential Analysis for Students by Class Standing on: Seek Friend/Colleague Assistance When Unable to Determine the Value or Relevance of a Source

Ho	Groups	p	Mean Comparison		
III_F4	A = Lower Undergraduates	.2144	C	A	C
	B = Upper Undergraduates		N=56	N=102	N=89
	C = Graduate Students		3.1429	3.3922	3.5056

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

With a total group mean of 3.0817, respondents by class standing clusters saw "library how-to-handouts" as a neutral (on a 1-2-3-4-5 scale; 1 least useful to 5 most useful) method for finding information. The F probability was .0089 at alpha .05, indicating significant difference existed between groups on this item. The null hypothesis III_G1 was rejected.

Usefulness of the method was rated highest (3.333) by graduate students and lowest by junior/senior students (2.7500). Freshman/sophomore student mean was 3.2286.

Scheffe post hoc analysis (.05) indicated significant difference in this study between the upper undergraduates and lower undergraduates and graduate students on the usefulness of how-to-handbooks. Table 65 summarizes the analysis:

Table 65

Summary of Inferential Analysis for Students by Class Standing on Usefulness of Library How-to Handouts for Information Needs

Ho	Groups	p	Mean Comparison		
	A =	.0089	B	A	C
III_G1	Lower Undergraduates				
	B =		N=92	N=105	N=60
	Upper Undergraduates				
	C =		2.7500	3.2286	3.3333
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons.
Alpha = .05

Virtually all respondents by class standing clusters saw "self-paced library workbook exercises" as the less useful or least useful (on a 1 2 3-4 5 scale; 1 least useful to 5 most useful) method for finding information. The F probability was .0050 at alpha .05, indicating significant difference existed between groups on this item. The null hypothesis

III_G2 was rejected.

Usefulness of the self-paced method was rated least useful (1.7865) by junior/senior students and registered a 2.1356 mean by graduate students and a 2.3301 mean by freshman/sophomore students. Scheffe post hoc analysis (.05) indicated significant difference in this study between the upper undergraduates and lower undergraduates on the usefulness of the self-paced workbook exercises. Table 66 summarizes the analysis:

Table 66

Summary of Inferential Analysis for Students by Class Standing on Usefulness of Self-paced Library Workbook Exercises for Information Needs

Ho	Groups	p	Mean Comparison		
	A =	.0050	B	C	A
III_G2	Lower Undergraduates				
	B =		N=89	N=59	N=103
	Upper Undergraduates				
	C =		1.7865	2.1356	2.3301
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons.
Alpha = .05

The less useful response (on a 1 2 3 4 5 scale; 1 least useful to 5 most useful) was selected by the respondents of all groups for the "in-class visiting lecturer" method for finding information. The F probability was .4563 at alpha .05, indicating no significant difference existed between any two groups on this item. The null hypothesis III_G3 was accepted.

Usefulness of the method was mean 2.6833 for graduate students, mean 2.4396 for junior/senior students and 2.6286 for freshman/sophomore students. Scheffe post hoc analysis (.05) indicated no significant difference in this study between groups on the usefulness of the in-class visiting lecturer method. Table 67 summarizes the analysis:

Table 67

Summary of Inferential Analysis for Students by Class Standing on Usefulness of In-class Visiting Lecturer for Information Needs

Ho	Groups	p	Mean Comparison		
	A =	.4563	B	A	C
III_G3	Lower Undergraduates				
	B =		N=91	N=105	N=60
	Upper Undergraduates				
	C =		2.4396	2.6286	2.6833
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons.
Alpha = .05

Undergraduate respondents found "in-library conducted instruction" less useful (on a 1 2 3 4 5 scale; 1 least useful to 5 most useful) than graduate students. Total groups mean was 2.9654. The F probability was .4563 at alpha .05, indicating no significant difference existed between two groups on this item. The null hypothesis III_G4 was accepted.

Junior/senior students selected "less useful" (2.8132) more frequently (2.9439) than freshman/sophomore students.

Scheffe post hoc analysis (.05) indicated no significant difference in this study between any two groups of students on the usefulness of in-library conducted library instruction for finding information needed. Table 68 summarizes the analysis:

Table 68

Summary of Inferential Analysis for Students by Class Standing on Usefulness of In-library Conducted Instruction for Information Needs

Ho	Groups	p	Mean Comparison		
	A =	.1766	B	A	C
III_G4	Lower Undergraduates				
	B =		N=91	N=107	N=62
	Upper Undergraduates				
	C =		2.8132	2.9439	3.2258
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha = .05

The mean of the three groups on "information from the classroom professor as a useful method (on a 1 2 3 4 5 scale; 1 least useful to 5 most useful) was 3.1794. The F probability was .4748 at alpha .05, indicating no significant difference existed between any two groups on this item. The null hypothesis III_G5 was accepted.

Freshman/sophomore students found the "information from classroom professor" a more useful (3.2174) method for finding information than junior/senior or graduate students. Scheffe post hoc analysis (.05) indicated no significant difference in this study between any two groups on the usefulness of information from classroom professors as a library instruction method. Table 69 summarizes the analysis:

Table 69

Summary of Inferential Analysis for Students by Class Standing on Usefulness of Information From Classroom Professor for Information Needs

Ho	Groups	p	Mean Comparison		
	A =	.4748	A	B	C
III_G5	Lower Undergraduates				
	B =		N=108	N=92	N=62
	Upper Undergraduates				
	C =		3.0741	3.2174	3.3065
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons.
Alpha =.05

According to total groups' mean (3.8707), respondents by class standing clusters find "computer help screens" (on a 1-2 3-4-5 scale; 1 least useful to 5 most useful) useful for finding information for their needs. The F probability was .2151 at alpha .05, indicating no significant difference existed between groups on this item. The null hypothesis III_G6 was accepted.

Respondent means were 3.8333 for freshman/sophomore students and 4.0215 of junior/senior students. Graduate student mean was 3.7097. Scheffe post hoc analysis (.05) indicated no significant difference in this study between any two groups on the usefulness of computer help screens for library user education. Table 70 summarizes the analysis:

Table 70

Summary of Inferential Analysis for Students by Class Standing on Usefulness of Computer Help Screens for Information Needs

Ho	Groups	p	Mean Comparison		
	A =	.2151	C	A	B
III_G6	Lower Undergraduates				
	B =		N=62	N=108	N=93
	Upper Undergraduates				
	C =		3.7097	3.8333	4.0215
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons. Alpha =.05

Overwhelmingly, respondents selected "help as needed from a reference librarian" as a more useful (on a 1-2-3-4-5 scale; 1 least useful to 5 most useful) method for finding information for their needs. The F probability was .1135 at alpha .05, indicating no significant difference existed between groups on this item. The null hypothesis III_G7 was accepted.

Freshman/sophomore respondent mean was highest at 4.5463, followed closely by graduate students at 4.4762 and junior/senior students at 4.2947. Scheffe post hoc analysis

(.05) indicated no significant difference in this study between any two groups of students on the usefulness of help as needed from a reference librarian for finding information. Table 71 summarizes the analysis:

Table 71

Summary of Inferential Analysis for Students by Class Standing on Usefulness of Help as Needed from a Reference Librarian for Information Needs

Ho	Groups	p	Mean Comparison		
	A =	.1135	B	C	A
III_G7	Lower Undergraduates				
	B =		N=95	N=63	N=108
	Upper Undergraduates				
	C =		4.2947	4.4762	4.5463
	Graduate Students				

Note: Scheffe was used for Oneway ANOVA Mean Comparisons.

Alpha = .05

Unhypothesized Findings

Faculty Responses on Library Use and Instruction

Faculty responses by academic clusters (social sciences, humanities, and sciences) were divided by academic status (tenured and non-tenured) for questions 08 and 14. Then, responses to 1) encouraging students to use the library for five types of assignments (Question 08), and to 2) the usefulness of seven library instruction methods for students (Question 14) were ranked by means.

According to responses ranked by means, tenured (N = 20) and non-tenured (N = 14) social sciences faculty members responded similarly. By exchanging the first-place rankings of tenured and non-tenured faculty members, the social sciences respondents were no different in their ranking on encouraging students to use library resources for the specified types of assignments. Table 72 presents rankings:

Table 72

Rankings of Social Sciences Faculty Responses on Encouraging Students to Use Library Resources for Assignments

Ranking of Assignments - Tenured (N = 20)	Mean
Book or journal article review	4.000
Research paper or prospectus	4.000
Critical thought paper	4.000
Gathering interpreting data	3.235
Oral report	2.643
Ranking of Assignments - Non-tenured (N = 14)	**Mean**
Research paper or prospectus	4.636
Book or journal article review	4.125
Critical thought paper	3.875
Gathering interpreting data	3.100
Oral report	3.091

Note. The mean for the data is based on 1-2-3-4-5 scale (1 Least often to 5 Most often).

According to ranking by means, tenured (N = 30) and non-tenured (N = 11) humanities faculty members ranked the "research paper or prospectus" and the "critical thought paper" 1 and 2 of 5 types of assignments, while the non-tenured humanities faculty members ranked the research paper or prospectus and the oral report as the top two preferences on encouraging students to use library resources for specific types of assignments. Table 73 presents rankings:

Table 73

Rankings of Humanities Faculty Responses on Encouraging Students to Use Library Resources for Assignments

Ranking of Assignments - Tenured (N = 30)	Mean
Research paper or prospectus	4.571
Critical thought paper	3.852
Book or journal article review	3.650
Gathering interpreting data	3.348
Oral report	3.318
Ranking of Assignments - Non-tenured (N = 11)	**Mean**
Research paper or prospectus	4.875
Oral report	4.000
Critical thought paper	3.500
Book or journal article review	3.000
Gathering interpreting data	2.400

Note: The mean for the data is based on 1-2-3-4-5 scale (1 Least often to 5 Most often).

Rank by mean for tenured (N = 26) sciences faculty members was high (3.565) for the research paper or prospectus and low (2.714) for the critical thought paper. The non-tenured science faculty members found the research paper or prospectus (5.000) high and the oral report lowest mean (2.833) of the 5 types of assignments. Table 74 rankings.

Table 74

Rankings of Sciences Faculty Responses on Encouraging Students to Use Library Resources for Assignments

Ranking of Assignments - Tenured (N = 26)	Mean
Research paper or prospectus	3.565
Book or journal article review	3.421
Oral report	2.957
Gathering interpreting data	2.750
Critical thought paper	2.714
Ranking of Assignments - Non-tenured (N = 09)	**Mean**
Research paper or prospectus	5.000
Critical thought paper	3.667
Gathering interpreting data	3.235
Book or journal article review	3.000
Oral report	2.833

Note: The mean for the data is based on 1-2-3-4-5 scale (1 Least often to 5 Most often).

Of the seven library use methods or materials rated useful for students, the tenured (N = 20) and the non-tenured (N = 14) social sciences faculty members ranked "help as needed from a reference librarian" at highest means of 4.278 and 4.357, respectively, Tenured social sciences faculty members selected the selected the "self-paced workbook" lowest mean (2.313), while the non-tenured sciences faculty members responded "information from professor" at mean 2.714. Tables 75 presents rankings:

Table 75

Rankings of Social Sciences Faculty Responses On Usefulness of Library Use Methods/Materials for Students

Ranking of Methods - Tenured (N = 20)	Mean
Help as needed from a reference librarian	4.278
How-to handouts	4.118
In-library conducted instruction	4.118
Computer help screens	4.000
Information from professor	3.333
In-class visiting lecturer	3.313
Self-paced workbook	2.313

Ranking of Methods - Non-tenured (N = 14)	Mean
Help as needed from a reference librarian	4.357
In-library conducted instruction	4.000
Self-paced workbook	3.417
How-to handouts	3.692
Computer help screens	3.667
In-class visiting lecturer	3.071
Information from professor	2.714

Note: The mean for the data is based on 1-2-3-4-5 scale (1 Least useful to 5 Most useful).

Tenured (N = 30) and non-tenured (N = 11) humanities faculty members (mean 4.500 and 4.300) saw "help as needed from a reference librarian" as the preferred library use instruction method. Excluding "self paced workbook" and "information from professor" methods, tenured and non-tenured social sciences faculty rankings were similar. Tables 76 summarizes responses:

Table 76

Rankings of Humanities Faculty Responses

On Usefulness of Library Use Methods/Materials for Students

Ranking of Methods - Tenured (N = 30)	Mean
Help as needed from a reference librarian	4.500
In-library conducted instruction	4.038
How-to handouts	3.607
Computer help screens	3.444
Self-paced workbook	3.160
Information from professor	3.154
In-class visiting lecturer	2.923

Ranking of Methods - Non-tenured (N = 11)	Mean
Help as needed from a reference librarian	4.300
In-library conducted instruction	4.300
How-to handouts	3.000
Computer help screens	3.000
Information from professor	2.778
Self-paced workbook	2.700
In-class visiting lecturer	2.600

Note: The mean for the data is based on 1-2-3-4-5 scale (1 Least useful to 5 Most useful).

The tenured (N = 26) and non-tenured (N = 09) science faculty members ranked (mean 2.167 and 1.1857 respectively) "in-class visiting lecturer" as the last of seven library use or materials useful for their students. The tenured faculty members (4.269) saw "how-to handouts" as the preferred (4.269) instruction method for their students and "in-class visiting lecturer" as the least preferred (2.167) method for instruction, while the non-tenured faculty preferred "help as needed from a reference librarian" (4.250) and "in-class visiting lecturer" to a lesser degree (1.857). Table 77 presents rankings:

Table 77

Rankings of Sciences Faculty Responses

On Usefulness of Library Use Methods/Materials for Students

Ranking of Methods - Tenured (N = 26)	Mean
How-to handouts	4.269
Help as needed from a reference librarian	4.038
Computer help screens	3.840
In-library conducted instruction	3.520
Information from professor	2.846
Self-paced workbook	2.760
In-class visiting lecturer	2.167

Ranking of Methods - Non-tenured (N = 09)	Mean
Help as needed from a reference librarian	4.250
How-to handouts	3.571
Computer help screens	3.500
In-library conducted instruction	3.125
Information from professor	3.000
Self-paced workbook	2.000
In-class visiting lecturer	1.857

Note. The mean for the data is based on 1-2-3-4-5 scale (1 Least useful to 5 Most useful).

Faculty Open-end Suggestions for Better Library Service

As an open-end closing statement, faculty respondents were requested to "List how the library can provide better service to you or your students." Responses were interpreted and categorized broadly. Faculty members suggested more journals most frequently (25). Other frequent responses were more books (10) and more building space needed (08). Excluding comments of no suggestions or praise of the status quo, Table 4.10 categorizes number of responses by frequency for comment:

Table 78

Faculty Suggestions for Better Library Service

Category	No. of Responses by Frequency of Comment
Periodicals/journals (more)	25
Books (more)	10
Space (more space needed)	08
Library catalog (improve campus/area online access)	07
Communication of resources/services (improve)	07
Hours of operation (more)	06
Library use instruction	05
Technology training	05
Circulation and interlibrary loan	04
Databases or access to databases (more)	04
Quiet in library (more)	03
Bound journals/less fiche journals	03
Media center services	03
Weeding the collection	02
Budget (more)	02
Technology (update)	02
Library staff (more)	02
Cultural programs	01

Note. Open-end totals are for Question 18 only. Responses were interpreted and categorized.

Student Open-end Suggestions on Library Services, Resources or Facilities

Respondents were provided space to list three current services, resources or service facilities that they value most highly, along with space to list three suggestions to improve library services, resources or facilities. Responses were interpreted and categorized broadly. The three top comments for current library services, resources, or facilities that you value most highly were 1) reference librarians (103), library catalog (103), and periodicals (67), including journals, abstracts, indexes, and newspapers. Excluding the responses not applicable, none, or non-library related comments, Table 79 categorizes number of responses by frequency for comment:

Table 79

Library Services, Resources, and Facilities

Students Value Most Highly

Category	No. of Responses by Frequency of Comment
Librarians (reference librarians)	103
Library catalog (online access)	103
Periodicals (journals, abstracts, indexes, newspapers)	67
Databases (search)	66
Books (materials not listed otherwise)	54
Microfilm	36
Circulation/reserves/interlibrary borrowing and use	25
Photocopiers	13
Peace and quiet of the library	13
Audio/video	07
Study space	05
Recreational reading	03
Card catalog	02
Library	02
Parking	01
Organization	01
Restroom	01

Note. Comments were interpreted and categorized.

The top three recommendations for improvement of library services, resources or facilities were 1) more/updated journals, magazines or periodicals (38), 2) use instruction (30), and 3) more quiet in library (29). Excluding the responses N/A, none, facetious comments, or comments of praise like "everything is fine," Table 80 presents respondents' suggestions for improvement of library services, resources and facilities:

Table 80

Student Suggestions to Improve Library Services, Resources or Facilities

Category	No. of Responses by Frequency of Comment
Journals, newspapers or periodicals (more/update)	38
Use instruction (more)	30
Quiet in library (more)	29
Books (more/newer)	26
Organization (layout of all resources)	21
Use of equipment instruction	18
Computer/online access (more)	18
Building (enlarge/more individual study space)	18
Hours (more)	13
Librarians (more reference librarians)	12
Staff availability (more)	11
Databases (more/better access)	10

TABLE 80 (Continued)

Category	No. of Responses by Frequency of Comment
Photocopiers (more and less cost)	13
Budget (increase)	08
Circulation/interlibrary services and fees (improve)	09
Computer/microfilm technology dependence (less)	05
Microfilm (more/better service)	05
Audio/video (more)	04
Lounge area (create)	03
Parking (more)	02
Computer lab in library (create)	02
Communication of services/resources (more)	02
Card catalog (in addition to online)	02
Air conditioner (use)	02
Card catalog (keep/update)	02

Note. Comments were interpreted and categorized.

Pearson Product Moment Correlations

Correlation coefficients may be used to describe possible relationships between variables of the same population. For this study, level of significance of Pearson r coefficients was set at alpha .05. Guidelines from Huck, Cormier and Bounds (1974, (p. 31) are used for interpreting the size of correlation coefficients:

+ .95, + .85, + .93, + .87	high positive correlation
+ .23, + .17, + .18, + .20	low positive correlation
+ .02, + .01, .00, - .03	no systematic correlation

- .21, - .22, - .17, - .19 low negative correlation

- .92, - .89, - .90, - .93 high negative correlation

Faculty Pearson Product Moment Correlations.

Correlation coefficients were computed for the faculty test population for length of service at The Citadel and for teaching loads with the query "In how many of your present courses do you encourage students to use the library?" There was a low positive r (.1345) between length of service and encouraging students to use the library at alpha 05.

Table 81 reports correlation coefficients computed for the test population of faculty responses for teaching number of 1) students, 2) courses (not sections), 3) undergraduate lower-level courses, 4) upper-level undergraduate courses, and 5) graduate courses and the query "In how many of your present courses do you encourage students to use the library?" Of the five teaching loads tested, "courses (not sections)," and " undergraduate lower level courses" were at significant difference level .05

Correlation coefficients for teaching loads and encouraging students to use the library were all low, including a low negative (-.1030) for "upper level undergraduates." The low positive coefficients were from .0230 (graduate level courses) to .3246 for "courses (not sections)" taught during Fall, 1991.

Table 81

Correlation Coefficients: Faculty Responses for Students or Courses Taught and Encouraging Students to Use the Library

Teaching Fall, 1991: number of students	.0685 (117) P= .232
Teaching Fall, 1991: number of courses (not sections)	.3246 (110) P= .000
Teaching Fall, 1991: number of lower-level undergraduate courses	.2683 (71) P= .012
Teaching Fall, 1991: number of upper-level undergraduate courses	-.1030 (57) P= .223
Teaching Fall, 1991: number of graduate level courses	.0230 (28) P= .454

Alpha .05

Student Pearson Product Moment Correlations.

Student respondents were asked how frequently they used the library for any reason, the number of courses they were taking in Fall, 1991, and how many courses they were taking required use of the library. The r correlation computed for the test population of student responses for number of courses taking and "how many courses this semester require use of the library?" was .0212. Table 82 reports r coefficients computed for test population student responses to how frequently (times per week, times per month, times per semester, and never use) you used the library for any reason and "how many courses this semester require use of the library?" Review of this table indicates two of the five coefficients are at .05 or greater and one not computed. There is moderate correlation between courses requiring use and the "times per semester" (.5098) frequency.

Table 82

Correlation Coefficients: Student Number of Courses Requiring Library Use and Frequency of Use, Fall 1991

Frequency of Use	Courses Requiring Library Use
Times per Week	.0702
	(121)
	P= .222
Times per Month	.2240
	(61)
	P= .041
Times per Semester	.5098
	(52)
	P= .000
Never Use	.
	(16)
	P= .

Alpha .05

The number of courses taken in Fall, 1991 registered significant difference (.007) and a low negative correlation coefficient (-.1653) with student provided grade point average. "How many of your courses this semester require use of the library?" computed a no systematic correlation to low negative r= -.0493 with grade point average. Table 83 presents correlation coefficients computed for test population student responses on frequency of library use with grade point average at The Citadel. Only "times per semester" registered significant difference (.05) and a moderate r coefficient (.4254) with grade point average.

Table 83

Correlation Coefficients: Student Responses
For Frequency of Use, Fall 1991 and Grade Point Average

Use	Grade Point Average
Times per week	.0307
	(98)
	P= .382
Times per month	.0102
	(52)
	P= .472
Times per semester	.4254
	(41)
	P= .003
Never Use	.
	(11)
	P= .

Alpha .05

Typical Week Circulations Transactions

To furnish data for comparison of actual circulations transactions to student perception of library use through questionnaire responses, a designated week's (November 04-10, 1991) circulations transactions for each user class was collected from the library's integrated online library system (ATLAS). In the same designated week, in-house usage data were also collected.

Transactions for materials charged during the week were 1485. In-house use of materials was 1849. Of the 1485 circulations transactions, 1290 were to student borrower classes, 72 were the faculty borrower class and 123 were other borrower classes. Table 84 reports only circulations transactions (1290) by class standing (borrower classes) for the student population respondents:

Table 84

Typical Week Library Circulations Transactions by Borrower Classes for Student Population Borrowers

User Class	Percent	Circulations Transactions
Freshmen	24.5	316
Sophomores	23.3	300
Juniors	19.2	248
Seniors	11.4	147
Graduate students	21.6	279
Totals	100.0	1290

Note. Typical week transactions for November 4-10, 1991.

Summary

This chapter presented description of frequencies, percentages, analyses, and tables for questionnaire statements as applicable. Faculty and student responses were divided into three groups by discipline. Student responses were also divided into three groups by class standing.

Oneway analysis of variance testing was conducted and analyzed for each part of three multi-part hypotheses: 1) two major questions on resource importance to faculty discipline and encouragement of student library use, 2) three questions on library use and value, and 3) seven questions on needs assessment and library instruction. Faculty responses on encouragement of students to use the library resources for specific assignments and on the usefulness of seven methods of library instruction methods for students were also divided by tenure and non-tenure and ranked by means. Pearson Product Moment Correlations were conducted and described for faculty and students. Faculty and student open-end statements were categorized and ranked by frequency of comment.

Chapter V

Discussion, Implications, and Recommendations

Introduction

The purpose of the final chapter is threefold: to summarize the study based on hypothesized and unhypothesized findings of the previous chapter; to include discussion and implications of findings; and to make recommendations for further assessment of patron use/needs of services, library holdings, and user education limited to this study.

Specifically, this study was designed to assess the opinions of faculty and student use of library services and the need for information use instruction. The literature review revealed that colleges and universities have been surveying library use since the 1930s for planning (Summers, 1987). Libraries and institutions have been adapting to changes in library use surveys developed out of communication theory (Verhoeven, 1980).

The literature also revealed various assessments of library use and user education that were applied to effectively diagnose, prescribe, and evaluate user needs and information exchange (Hannabus, 1987; Jax, 1984; Lubans, 1974; Varnado, 1981). Jax (1984) recommended addressing computer literacy and conducting further research on student needs, while Varnado (1981) recommended that the library studied ". . . should become more responsive to its clientele" (p. 179). Furthermore, by combining the concepts of location skills and interpretation skills, librarians and faculty can promote critical thinking in educating the library user (Bodi, 1988; McCormick, 1983).

Based on the literature review, two questionnaires were developed to assess a test population of students and faculty members concerning their opinion on the use of the library, need/value for information and sources, and the usefulness of specific library instruction methods. The Citadel faculty members reviewed and critiqued both questionnaires based on objectives. Ten randomly selected faculty members rated and critiqued faculty questionnaire statements for validity and clarity, while 18 of 20 randomly selected students participated in a pilot test and retest of the student questionnaire.

Summary of Hypothesized Findings

The summary of hypothesized findings includes background for testing. This summary of hypothesized findings also includes only a statement of each multi-part hypothesis and the subsequent listing of those parts accepted and rejected. Later discussion of conclusions incorporate findings.

The test population (faculty and student) were surveyed by separate questionnaires. Six responses were provided for each item on a scale from 1-2-3-4-5-6 in which "low" carried a weight of 1 point, "high" carried a weight of 5 points. A response of 6 (no opinion, not used or not applicable) carried no points. The survey response rate level was acceptable for mailed questionnaires to special populations

(Sudman & Bradburn, 1984). Faculty response rate was 66 percent. Student response rate was 62 percent.

For investigation purposes, the test population was tested from one aspect for faculty respondents and two aspects for student respondents, with three groups for each aspect. To evaluate the opinions of the respondents, testing of three multi-part null hypotheses was conducted at alpha .05, using oneway analysis of variance. The Scheffe procedure was used for testing pairwise difference between groups. Kennedy (1978) described the Scheffe procedure as "the most flexible method in that both pairwise and compound contrasts can be made, and these types of comparisons can be executed for both equal and unequal N situations" (p. 212). In all cases where questionnaire statements were rejected, the differences in the perceptions of the three groups were attributed to differences in their range of response to the question.

Hypothesis I

The following multi-part Null Hypothesis I variables and faculty member disciplines were tested:

I. There are no significant differences in the responses of The Citadel faculty members in the social sciences, the humanities, and the sciences in this study on:
   A. How important to you are purchases in the following areas when budgets are cut?
      1. periodicals/journals collections
      2. media (audio/videorecordings)

   3. reference collection (indexes, abstracts, and databases
   4. main collection (circulating books)
- B. To what degree do you usually encourage students to use library resources for assignments below?
   1. critical thought paper
   2. research paper or prospectus
   3. oral report
   4. book or journal article review
   5. gathering or interpreting data

Results of analysis of variance procedures failed to reject four of nine questionnaire items testing Hypothesis I. The three groups, based on their responses of no significance for parts accepted are:

I_A1, I_A3, and I_B3, and I_B5.

Those parts rejected are: I_A2, I_A4, and I_B1, I_B2, and I_B4.

Hypothesis II

The following multi-part Null Hypothesis II variables and student disciplines were tested:

II. There are no significant differences in the responses of The Citadel student majors in the social sciences, the humanities, and the sciences in the study on library use and value?

   A. From the checklist below of reasons for library use, indicate how frequently these reasons apply to you.

1. to checkout or use books
2. to use periodicals
3. to use print or computer indexes
4. to study my own textbooks
5. for recreational reading
6. to seek research assistance
7. for interlibrary loan borrowing

B. During Fall, 1991, how valuable have library resources and services been for completing the following assignments?

1. critical thought paper
2. research paper or prospectus
3. oral report
4. book or journal article review
5. gathering or interpreting data

C. For your major field of study, circle the adequacy of service assistance and library holdings listed.

1. reference librarian
2. microfilm/microfiche
3. catalog (ATLAS)
4. reserves/circulation
5. interlibrary loan
6. periodicals/journals
7. books

Results of analysis of variance procedures failed to reject eleven of nineteen questionnaire items testing

Hypothesis II. The three groups, based on their responses of no significance for parts accepted are:

II_A5, II_A7, II_B1, II_B3, II_B4, II_B5, II_C2, II_C3, II_C4, II_C5, and II_C6.

Those parts rejected are: II_A1, II_A2, II_A3, II_A4, II_A6, II_B2, II_C1, and II_C7.

Hypothesis III

The following multi-part Null Hypothesis III variables and students in class standing were tested:

III. There are no significant differences in the responses of The Citadel lower-level undergraduate students (freshmen and sophomores), upper-level undergraduate students (juniors and seniors), and graduate students in this study on information needs assessment and library use instruction on:

A. Acquiring information is important to my coursework and/or job performance.

B. In gathering information in the library, indicate the degree you "found what you needed" because of your

1. research ability,
2. browsing or luck, or
3. urgent need to find the information.

C. When unable to find what I need in the library, I normally conclude that the library does not have the information.

D. How important to you are the following methods in gathering information for courses?

1. reading journals in your field
2. reading journals in other fields
3. searching library catalogs
4. locating citations in sources
5. consulting a reference librarian
6. browsing library shelves
7. using indexes or abstracts
8. reading reviews or abstracts?

E. To what degree can you determine (on your own) the value or relevance of a source to your research task?

F. When unable to determine the value or relevance of a source on your own, indicate the degree you normally seek

1. no assistance to evaluate,
2. reference librarian assistance,
3. class professor assistance, or
4. friend/colleague assistance.

G. How useful would the following methods of finding information be for your needs?

1. library how-to handouts
2. self-paced library workbook exercises
3. in-class visiting lecturer
4. in-library conducted instruction
5. information from classroom professor
6. computer help screens

7. help as needed from a reference librarian

Results of analysis of variance procedures failed to reject eighteen of twenty-five questionnaire items testing Hypothesis III. The three groups, based on their responses of no significance for parts accepted are:

III_B1, III_B2, III_B3,
III_C,
III_D3, III_D4, III_D5, III_D6,
III_E,
III_F1, III_F2, III_F3, and III_F4,
III_G3, III_G4, III_G5, III_G6, and III_G7.

Those parts rejected are:

III_A,
III_D1, III_D2, III_D7, III_D8, and
III_G1, III_G2,

Summary of Unhypothesized Findings

Hypothesized faculty responses were divided by academic cluster (social sciences, humanities, and sciences) and academic status (tenured and non-tenured). Then, responses to 1) encouraging students to use the library for five types of assignments, and to 2) the usefulness of seven library instruction methods for students were ranked by means.

Rankings showed little difference between tenured and non-tenured social sciences faculty members on encouraging students to use the library for the five types of assignments. The only exception to first-place ranking for the "research paper" was tenured social sciences faculty members. The rankings for all faculty members except non-tenured humanities and tenured sciences were last for the "oral report" assignment. The "critical thought paper" ranked midpoint for three of the six ratings with lowest rank from tenured sciences faculty members.

For the seven library use instruction methods, all faculty members except the tenured sciences faculty members ranked "help as needed from the reference librarian" first-place. Tenured sciences faculty members found "how-to handouts" more useful, while the ranking for all faculty members except social sciences found "in-class visiting lecturer" as the least preferred instruction method. "Computer help screens" were ranked midpoint for all faculty members except for five of seven for non-tenured social sciences faculty members and for three of seven sciences faculty members.

Open-end Comments on Library services, Resources, and Facilities

Faculty respondents offered 76 open-end responses to the statement: "List how the library can provide better service to you and your students." More journals (25) and more books (10) were the two most frequent suggestions. Other salient suggestions included more building space and the improvement of the library catalog. Although tallied separately, library use instruction and technology training taken as one unit (instruction) occurred as ten suggestions. There were six requests for more hours of operation.

Students offered 804 open-end responses for 1) library services, resources, and facilities valued most highly, and 2) suggestions to improve library services, resources and facilities. Of the 502 responses for valued most highly, the major responses were a tie (103 each) for librarians (reference librarians) and the library catalog (especially online access). Second to valued most highly was a near tie for periodicals (67) and database searching (66).

Students offered fewer (302) suggestions for improvement of services, resources, and facilities. Periodicals received the third most highly valued response, but the most frequent (38) response for improvement. More use instruction ranked second (30) in requests for improvement. However, If "use instruction" and "use of equipment instruction" are combined, library use instruction was the most suggested (48) request for improvement. A close third was a request (29) for more quiet in the library.

Pearson Product Moment Correlations

Correlation coefficients computed for the faculty test population for length of service at The Citadel and the encouragement of student library use was r = .1345 (.05). The r coefficients for responses on five separate teaching loads with the encouragement of student library use were all low (one negative; others positive).

Correlation coefficients were computed for the test student population for frequencies of library use and the number of courses requiring library use, as well as with student-reported GPA. Number of courses "taking in Fall, 1991" and GPA were also tested. The r correlations computed between frequencies of library use and courses requiring library use indicated a moderate relationship for the "times per semester" frequency. "Times per semester" was the only frequency of use that registered a moderate relationship with grade point average. The r coefficient between the number of courses "taking in Fall, 1991" and GPA showed a low negative relationship.

Typical Week Library Circulations Transactions

Circulations transactions by borrower class for a typical week (November 4-10, 1991) during Fall, 1991 were 1485, while in-house circulations were 1849. Eighty-seven percent (1290/1485) of the total transactions were by respondent classes (class standing) of the test population. Of this group, circulations were highest for freshmen (316/1290) and lowest for seniors (147/1290)

Discussion of Findings and Implications

Results of the analysis of variance (ANOVA) tests for each hypothesis as well as results from descriptive data are the bases for discussion. Data from the study of faculty and students of The Citadel show the effects of variables of discipline and/or class standing on their attitudes towards use/needs of library holdings, services, and user education as reflected in responses in this study.

Findings indicate maintaining journal holdings are very important to all faculty disciplines or clusters when budgets are cut, while audio-visual media are less important. All groups regarded journals and reference collection purchases as important. Because humanities faculties judged purchasing books more important than other faculties, and because sciences faculties judged media less important than other faculties, two tenable conclusions are:

(1) Journals are important to all faculty respondents, but humanities respondents see library book holdings relatively more important than other disciplines.

(2) The low regard faculty respondents express for protecting media purchases when budgets are cut may reflect the absence of an established campus or library media center.

As background to the issue of faculty encouraging their students to use the library for specified assignments, findings were 12.8 percent (18/141) of faculty reported that they did not encourage students to use the library in present courses, and 26.2 percent reported the mode (2). A mode of two was not unexpected considering 22.7 percent of respondents were non-tenure or less than full time status where one or two courses may have represented all courses taught. The Citadel faculty participants were not asked how many of their courses required library use, but The Citadel students' mean response to the question was 1.643, with 22.9 percent responding no courses required library use. Faculty response in the Jax (1984) study on the number of courses taught that required use of the library was 50 percent for both faculty and students, while 7.1 percent of faculty and

2.8 percent of students reported no courses required library use. Students responded 61.6 percent "yes" to a similar question asking do current professors encourage use of the library. This student response compares favorably with student response of 77 percent in the Jax (1984) study.

Five specified types of assignments were categorized for faculty to designate the degree they encouraged students to use the library. The two assignments which were given the highest ratings (more or most often) by more than 40 percent of the respondents were the research paper (66.0 percent) and book or journal article review (41.8 percent). The two items with highest "not applicable" responses were gathering or interpreting data (31.3 percent) and the critical thought paper (29.8 percent). In ANOVA findings, sciences faculties encouraged students less often than other faculties for both the critical thought paper and the research paper assignment. Additionally, social sciences faculty members more than sciences faculty members encouraged students to use the library for a book or journal review assignment.

In non-hypothesized analysis, the faculty respondents divided into the three clusters were also divided into tenured and non-tenured status groups within the three groups. Responses for these six groups were ranked by total mean for the same issue of faculty encouragement of library use for assignments. In contrast to the ANOVA findings for the three cluster groups on the same issue, non-hypothesized findings were different. Non-tenure sciences responses (09) ranked the most frequently first-place assignment (research paper or prospectus) highest mean (5.000), while the tenured sciences responses (26) ranked the same assignment first-place but at lowest mean (3.565) for the six groups. Additionally, a non-hypothesized Pearson r coefficient for length of service and encouraging students to use the library was a low positive.

Therefore, despite the differences in findings, evidence supports differences between sciences faculty members and other faculty members. Results point to these conclusions:

(3) Faculty and student respondents perceive that faculty members encourage library use. Student library use may be lower because students perceive that their courses do not require library use.

(4) The majority of sciences faculty respondents to the questionnaire do not noticeably encourage student library use to support the assignments specified.

Seven items were categorized as student reasons to use the library. The only item which was given the highest ratings (more or most frequent) by more than 40 percent of the respondents was research assistance (41.1 percent). The item with highest "not used" response was interlibrary loan (47.2 percent), and the item with the highest "least frequent" reason to use the library was recreational reading (31.0 percent). ANOVA results indicated no differences between groups on frequency of student use by discipline for recreational reading or interlibrary loan. But, humanities students used the library more than other students to checkout books, while social sciences students used the library more than other students to use periodicals.

Although individual groups' mean response indicated most students answered "least frequent" or "less frequent" for reason to use the library for print or computer indexes and for studying their textbooks, differences emerged between social sciences and sciences students for index use and between social sciences and sciences students for studying textbooks. Social sciences and humanities respondents were similar in their responses on frequency to seek research assistance, but humanities responses differed from sciences responses. Thus, findings suggest the following conclusions on frequency of reason for library use:

(5) Humanities respondents may more frequently use the library to checkout or use books because the discipline is book-centered whereas sciences and social sciences also stress labs, experiments, or hands-on empirical learning.

(6) Social sciences respondents' more frequent use of library to use periodicals may result from larger number of graduate courses in business, education, and psychology disciplines.

(7) Coupled with less end-user periodical database access in The Citadel Library for the sciences, less frequent use of the library by sciences students may also come from students discounting their use of two sciences departmental libraries in their responses, especially in their decision to seek research assistance less frequently.

All student responses tested for r coefficients showed no systematic correlation for the number of courses "taking during Fall, 1991" and the number of courses "requiring" use of the library. Additionally, no systematic correlation was registered between student-reported grade point average and the number of courses requiring use of the library.

With a mean use of library at 2.180 (per week), 2.885 (per month), and 3.792 (per semester), library use compares with the Jax (1984) study of mean use at twice weekly. However, a 6.7 percent student response to "never use" the library is much higher than .7 percent (5/406) reported in the Jax study.

The faculty query on encouraging students to use the library for specified assignments was also answered by student respondents as how valuable have library resources and services been for completing the same assignments. Two assignments which were given the highest ratings (more or most often) by more than 35 percent of the respondents were the research paper or prospectus (51.1 percent) and gathering or interpreting data (35.9 percent). The two items with highest "not applicable" responses were the oral report (50.4 percent) and the critical thought paper (42.3 percent).

ANOVA results indicated student humanities respondents found the library more valuable than other student groups for completing the research paper assignment. There were no differences for four of the five types of assignments. Sciences faculty members were less likely than other faculty

members to encourage their students to use the library for the specified assignments; moreover, sciences students' responses were at lower mean totals for student responses to all assignments except gathering and interpreting data. These results suggest the following conclusions:
(8) Student respondents of the sciences use the library less than respondents of other disciplines. Perhaps this student behavior is linked to sciences faculty members encouraging student use of the library less than other faculty members.
(9) Students and faculty members agree on the value of library use and resources in supporting the research paper or prospectus; therefore, librarian and faculty cooperation is essential for meeting student information needs.

Seven items were categorized as the adequacy service assistance and library holdings items. Two items which were given the highest ratings (more or most adequate) by more than half of the respondents were books (51.8 percent) and reference librarian (50.4 percent). The item with highest "not applicable" response was interlibrary loan (51.1 percent), and the item with the highest "least adequate" item response was 19.1 percent for the library catalog (ATLAS). ANOVA results found the respondents' major field of study was not significant for five of seven items. For periodicals or journals to your field of study, only 43.6 percent responded "more adequate" or "most adequate" compared to 66.5 percent of students responding "agree" or "strongly agree" to a similar item of the Varnado (1981) study.

Additionally, because ANOVA results showed humanities respondents saw reference librarian assistance more adequate than did sciences students and the main library collection more adequate than did social sciences students, two plausible conclusions may be drawn:

(10) Humanities respondents perceive library service and holdings of books more adequate for their disciplines.

(11) Sciences respondents perceive reference librarians less prepared to assist with their information needs.

More than 40.8 percent of all respondents "strongly agree" that acquiring information was important to their coursework and/or job performance, while only 1.1 percent "strongly disagree." ANOVA results by class standing showed that both undergraduate groups were similar, but that lower-level undergraduate respondents differed from graduate students on the importance of acquiring information for coursework or job performance.

All groups showed no differences in their perception of finding what they needed in the library because of their research ability, their luck, or their urgent need to find information. Respondents may have conflicting perceptions on their information needs. First, 57.8 percent of all respondents disagreed with concluding the library does not have the information they were unable to find. Second, 71.1 percent responded "higher" or "highest" as to the degree they were able to determine on their own the value or relevance of a source to their research task. From these two results, from total group means for groups with similar responses, and from the degree that students found what was needed because of their research ability, the following conclusion is derived:

(12) Students see the need for information, but they do not noticeably perceive that they need information help.

Eight methods were categorized as important in gathering information for courses. Two methods which were given the highest ratings (more or most important) by more than 45 percent of the respondents were consulting a reference librarian (54.5 percent) and reading journals in your field (49.0 percent). The two items with strongest low (least or less important) responses were reading journals in other fields (53.2 percent) and browsing library shelves (49.3 percent).

As to ANOVA results on the importance of methods for gathering information for courses, students responded similarly to most of the skills methods: searching library catalogs, locating citations of sources, consulting a reference librarian, and browsing library shelves. Of the three groups, graduate students responded at a higher means on all methods. Graduate students and junior/senior students differed significantly on the remaining skills method, using indexes and abstracts. For the evaluative approaches in gathering information for classes, graduate students judged significantly more important than both undergraduate groups for the three methods: reading journals in their field, reading journals in other fields, and reading reviews.

The faculty responded to the same query on methods important in gathering information but for research. Two methods which were given the highest ratings (more or most important) by more than 50 percent of the respondents were reading journals in your field (81.6 percent) and using indexes or abstracts (51.1 percent). The two items with strongest low (least or less important) responses were reading journals in other fields (41.1 percent) and browsing library shelves (35.5 percent). The total group mean for the three groups was less than 3.000 on two of the skills methods and one of the evaluative methods. Graduate students were more likely to employ the evaluative approaches. These findings suggest:

(13) Undergraduate students perceive the mastery of research skills less than important in gathering information for courses. Perhaps this perception of methods important to courses verifies a need for course-related library instruction.

Although 71.1 percent of all student respondents were confident they could determine the value or relevance of a source on their own, a nearly comparable percent (62.3) responded "higher" or "highest" degree that they normally sought "reference librarian assistance" when they were unable to determine the value or relevance of a source. ANOVA results indicated no significant difference between any of the groups on the degree they sought assistance in four ways.

Of the four ways, total group mean response was lowest for seeking "no assistance to evaluate" and highest for "reference librarian assistance." These results on seeking assistance illustrate the importance to users of the Chen and Hernon (1982) study finding that subjects seeking information considered accuracy, understandability, and time as the three most important considerations in finding information. Given a lower mean student response for most information gathering methods, along with a higher response for a comparable seeking assistance of both classroom professor and reference librarian, the following conclusion arises:

(14) Undergraduate students value assistance with determining the value or relevance of a source.

Open-end comments from students suggest more library instruction assistance on a help as needed basis. These comments include more use instruction (30), use of equipment instruction (18), more reference librarians (12), and more staff availability (11).

Seven items were categorized as useful methods of finding information for courses. Two methods which were given the highest ratings (more or most useful) by more than 50 percent of the respondents were help as needed from a reference librarian (83.5) and computer help screens (65.5 percent). The two items with strongest low (least or less useful) responses were self-paced library workbook exercises (62.3 percent) and in-class visiting lecturer (47.8 percent). ANOVA results on five of the seven methods were not significant. Junior/senior students perceived library how-to handouts less useful than did both freshman/sophomore students and graduate students. Junior/senior students also saw self-paced workbook exercises significantly less useful than freshmen/sophomores.

More than eighty percent of all students rated "help as needed from a reference librarian" as the more useful method of instruction and 54.9 percent rated "consulting a reference librarian" as the more important method in gathering information for courses. Such results also give merit to Shinebourne's (1980) and Katz's (1992) challenge of bibliographic instruction as the proper means for meeting user information needs.

The faculty members responded to the same query of eight items of library use methods or materials useful for my students. Four methods which were given the highest ratings (more or most important) by more than 50 percent of the respondents were help as needed from a reference librarian (72.3 percent), in-library conducted instruction (59.2 percent), how-to handouts (56.8 percent), and computer help screens (50.3 percent). The two items with strongest low (least or less important) responses were self-paced library workbook exercises (38.3 percent) and in-class visiting lecturer (38.3 percent).

Faculty preferred least the self-paced workbook and in-class visiting lecturer as (least or less useful) methods of library instruction for their students; similarly, no mean responses ranked over 3.333 for any group for any method other than "help as needed from a reference librarian" and computer help screens." Both results suggest weak support for library use instruction. Furthermore, the highest mean response of all groups was only 2.3301 for the freshmen/sophomores. Likewise, Leighton and Markman (1987) questioned taking the workbook instruction method seriously after finding that approximately one third of the respondents perceived little or no benefit and the method elicited hostility from more than a fourth of the sample. These findings suggest possible conclusions:

(15) Although freshman/sophomores may view the self-paced workbook instruction method more useful than other undergraduates because of recent implementation of the method as orientation for new undergraduate students, an alternative method is preferred by faculty respondents and all students.

(16) Students have an expressed need for use instruction assistance and a decided preference for help as needed instruction.

Recommendations

The conclusions drawn apply only to those responses in the population from which this study was drawn. The findings could have implications for colleges, faculties, and students similar to those described in the study. Academic discipline and class standing affect library use/needs and perception of value of library service, holdings and user education. Accordingly, based on conclusions and findings of this study, the following recommendations were made for further research and/or for meeting The Citadel Library user needs.

1. The study should be replicated in five years by modifying the instruments for assessment of library use and the evaluation of developing library programs in supporting the research, instruction, technology, and comfort or convenience needs of users.

2. Research should be undertaken to determine the effect of library and classroom coordinated information skills instruction and critical thinking skills instruction in a special group or class of students.

3. A study should be initiated to investigate faculty preference for allocating the library materials budget to meet academic department or cluster book, journal, and other materials needs as appropriate to each cluster.

4. Research should be conducted to determine the need for establishing a media collection/center appropriate for curriculum support.

5. The library staff should review its policy on maintaining a quiet atmosphere conducive to study.

6. The library staff should study the layout and use of building space, services and holdings to provide additional space.

7. The library staff should provide better and more photocopy equipment service to the user.

8 The library staff should improve its policies on purchase/update/weed coordination of library collections

development with departments.

9. The library staff should initiate a program to improve user awareness of library services offered in the library, in the community, and through national interlibrary access and loan.

10. The library should employ a sciences librarian at least for improvement staff of sciences student use, and perhaps even for incorporation of departmental sciences library collections into the main library building for better services to all students.

11. The library should consider creating an alternative to the current method of freshman orientation.

12. The Dean of Undergraduate Studies should encourage the Core Curriculum Committee and the Library Services Committee to coordinate efforts to ensure that The Citadel graduate masters the ability to locate and to evaluate information sources for both current and lifelong learning.

Summary

Separate questionnaires were developed to assess faculty and student opinion on library use, need/value of information sources, and the usefulness of specific library instruction methods. Faculty and student responses were grouped by academic clusters: social sciences, humanities, and sciences. Student responses were also grouped by class standing: freshmen, sophomores, juniors, seniors, and graduate.

Findings indicate maintaining journal holdings are very important to all faculty disciplines when budgets are cut, while audio-visual media are less important. Sciences faculty respondents differed noticeably from other faculty respondents on encouraging student library use to support specified assignments. Of seven library use instruction methods, all faculty members except the tenured sciences faculty members ranked "help as needed from the reference librarian" as first choice. Tenured sciences faculty members found "how-to handouts" more useful, while the ranking by all faculty members except social sciences found "in class visiting lecturer" as the least preferred instruction method.

Findings indicate student respondents in humanities perceive library service and holdings more adequate for their disciplines, while sciences respondents perceive reference librarians less prepared to assist with their information needs. When asked if current professors encouraged use of the library, students responded 61.6 percent yes but 22.9 percent of students responded that their courses did not require library use. Fifty percent of all student respondents found the library more than adequate for reference librarian assistance and for library books holdings.

Student respondents see the need for information, but they do not noticeably perceive that they need information help. Student respondents disagreed (57.8 percent) with concluding the library does not have information they were unable to find. More than 70 percent responded to "higher" or "highest" degree that they were able to determine on their own the value or relevance of a source to their research task. Furthermore, students by class standing responded similarly on five of seven methods of instruction. Freshmen/sophomores viewed the self-paced instruction method "less useful" but more useful than other students, while juniors/seniors viewed how-to handouts "less useful" but all other students selected "useful." Students expressed a need for use instruction assistance but selected "help as needed from the reference librarian" as the preferred method of instruction.

Though many respondents expressed satisfaction with the Library's services and holdings, others complained about the need for more journals, books, use instruction, photocopiers, and space and less noise. Others looked forward to audio and video facilities and campus/area online access service via the library catalog. From a close examination of data, the following recommendations were made for improving library services The Citadel Library's information mission:

1. Replicate this study in five years modified to assess library use and developing programs.

2. Undertake research to determine the effect of instruction in library and critical thinking skills in a special group or class of student.

3. Coordinate the efforts of the Core Curriculum Committee and the Library Services Committee to ensure that The Citadel graduate can locate and evaluate information

sources for current and lifelong learning.

4. Initiate a study to investigate faculty preference for allocating the library materials budget for books, journals, and other materials as appropriate to each cluster.

5. Conduct research to determine the need for a media collection/center for curriculum support.

6. The library staff should:

  a) maintain a quiet atmosphere conducive to study;
  b) study use of building space for providing adequate services and holdings space;
  c) improve photocopy equipment service;
  d) promote user awareness of library services;
  e) employ a sciences librarian at least for improvement of sciences student use; and
  f) create an alternative to the current method of freshman library orientation.

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Appendices

Appendix A: Sample Faculty Questionnaire

FACULTY LIBRARY USE/NEEDS ASSESSMENT QUESTIONNAIRE

Responses to this questionnaire should be based on your use and the value of library services to you or your students. Check or circle your choice. For each rating, 1 is LOW and 5 is HIGH. Circle NA for not applicable, not used or no opinion.

1. USER CATEGORY: (Check only one.)

a. ___ Tenured
b. ___ Tenure Track
c. ___ Non-Tenure Track
d. ___ Less than Full-time

2. SEX: ___ Male ___ Female

3. LENGTH OF SERVICE AT THE CITADEL: ____ years (number of years, including current year)

4. TEACHING: (Supply number for all that are applicable; check NA if you do not teach.) During Fall, 1991, I teach a total number of

a. ____ students.
b. ____ courses (not sections).
c. ____ undergraduate lower-level courses.
d. ____ undergraduate upper-level courses.
e. ____ graduate level courses.
f. ____ NA

5. DEPARTMENT: (Check only one.)

___ Aerospace Studies
___ Business Administration
___ Civil Engineering
___ Electrical Engineering
___ Health and Physical Education
___ Library
___ Military Science
___ Naval Science
___ Political Science
___ Biology
___ Chemistry
___ Education
___ English
___ History
___ Mathematics/ Computer Science
___ Modern Languages
___ Physics
___ Psychology

6. From the checklist below of reasons for library use, circle their frequency of use as they apply to you:

	Least Frequent				Most Frequent	Not Used
a. To checkout or use books	1	2	3	4	5	NA
b. To use periodicals	1	2	3	4	5	NA
c. To use print or computer indexes	1	2	3	4	5	NA
d. For recreational reading	1	2	3	4	5	NA
e. To seek research assistance	1	2	3	4	5	NA
f. For interlibrary loan borrowing	1	2	3	4	5	NA

7. How important to your discipline are purchases in the following areas when budgets are cut?

	Least Important				Most Important	No Opinion
a. Periodicals/journals collection	1	2	3	4	5	NA
b. Media (audio/videorecordings)	1	2	3	4	5	NA
c. Reference collection (indexes, abstracts, and databases)	1	2	3	4	5	NA
d. Main collection (circulating books)	1	2	3	4	5	NA

8. To what degree do you usually encourage students to use library resources for assignments below?

	Least Often				Most Often	Not Applicable
a. critical thought paper	1	2	3	4	5	NA
b. research paper or prospectus	1	2	3	4	5	NA
c. oral report	1	2	3	4	5	NA
d. book/journal article review	1	2	3	4	5	NA
e. gathering/interpreting data	1	2	3	4	5	NA

9. To what degree does the library have adequate resources so that your students can produce quality projects listed in question 8?

Least Adequate			Most Adequate		Not applicable
1	2	3	4	5	NA

10. Which instructional method should the library staff use to orient faculty to technologies such as CD-POM (i.e., laser disk end user database searching)? (Check only one.)

a. ___individualized instruction as need to use arises
b. ___workshop opportunity
c. ___none
d. ___other (Please specify.)__________________________

NEEDS ASSESSMENT:

11. How important to you are the following methods in identifying or acquiring needed information for research?

	Least Important				Most Important	No Opinion
a. reading journals in your field	1	2	3	4	5	NA
b. reading journals in other fields	1	2	3	4	5	NA
c. searching library catalogs	1	2	3	4	5	NA
d. locating citations of sources	1	2	3	4	5	NA
e. consulting a reference librarian	1	2	3	4	5	NA
f. browsing library shelves	1	2	3	4	5	NA
g. using indexes and abstracts	1	2	3	4	5	NA
h. reading reviews	1	2	3	4	5	NA

12. In how many of your present courses do you encourage students to use the library?

_____ (Use a number please.)

13. Core curriculum resource and reference skills should be taught as part of... (Check one only.)

a. __ a credited and required Orientation 101 course.
b. __ a non-credited and required Orientation 101 course.
c. __ the requirements for completing any course.
d. __ other:____.

14. How useful would the following library use methods or materials be for students?

	Least Useful				Most Useful	No Opinion
a. library how-to handouts	1	2	3	4	5	NA
b. self-paced library workbook exercises	1	2	3	4	5	NA
c. in-class visiting lecturer	1	2	3	4	5	NA
d. in-library conducted instruction	1	2	3	4	5	NA
e. information from classroom professor	1	2	3	4	5	NA
f. computer help screens	1	2	3	4	5	NA
g. help as needed from a reference librarian	1	2	3	4	5	NA

15. I am satisfied with the opportunities I have to recommend to the library staff the purchase of materials/services.

Strongly Disagree			Strongly Agree		No Opinion
1	2	3	4	5	NA

16. Interlibrary loan borrowing charges should be funded... (Check one only.)

a. __ by the college.
b. __ by user fee.
c. __ other. (Please explain:)_________________________

17. Should the location of all campus multi-media materials (i.e., audios, videos, computer software) be listed in the library online catalog, ATLAS?

___Yes ___No

18. List how the library can provide better service to you and your students:

a. ____

b. ____

c. ____

Appendix B: Sample Student Questionnaire

STUDENT LIBRARY USE/NEEDS ASSESSMENT QUESTIONNAIRE

Responses to this questionnaire should be based on your use and the value of library services to you. Check or circle your choice. For each rating, 1 is LOW and 5 is HIGH. Circle NA for not applicable, not used or no opinion.

1. USER CATEGORY: (Check more than one only if applicable.)

a. ___ Freshman
b. ___ Sophomore
c. ___ Junior
d. ___ Senior
e. ___ Graduate
f. ___ Less than Full-time student

2. SEX: ___ Male ___ Female

3. CITADEL CUMULATIVE GRADE POINT AVERAGE: ______

4. MAJOR/STUDY AREA: (Check only one or primary major.)

__ Biology
__ Chemistry
__ Education
__ English
__ History
__ Modern Languages
__ Political Science
__ Undeclared
__ Business Administration
__ Civil Engineering
__ Electrical Engineering
__ Health and Physical Education
__ Mathematics and Computer Science
__ Physics
__ Psychology

LIBRARY USE AND VALUE:

5. In general, how frequently do you use the library for any reason? (Supply number of times for only one frequency; Use 0 for never use.)

a. ___ times per week
b. ___ times per month
c. ___ times per semester
d. ___ never use

Comment: ____

6. Do your current professors encourage you to use the library?

___Yes ___No

7. How many courses are you taking in Fall, 1991?
_____ (Use a number please.)

8. How many of your courses this semester require use of the library?

_____ (Use a number please.)

9. From the checklist below of reasons for library use, indicate how frequently these reasons apply to you:

	Least Frequent				Most Frequent	Not Used
a. To checkout or use books	1	2	3	4	5	NA
b. To use periodicals	1	2	3	4	5	NA
c. To use print or computer indexes	1	2	3	4	5	NA
d. To study my own textbooks	1	2	3	4	5	NA
e. For recreational reading	1	2	3	4	5	NA
f. To seek research assistance	1	2	3	4	5	NA
g. For interlibrary loan borrowing	1	2	3	4	5	NA

10. During Fall, 1991, how valuable have library resources and services been for completing the assignments below?

	Least Often			Most Often		Not Applicable
a. critical thought paper	1	2	3	4	5	NA
b. research paper or prospectus	1	2	3	4	5	NA
c. oral report	1	2	3	4	5	NA
d. book/journal article review	1	2	3	4	5	NA
e. gathering/interpreting data	1	2	3	4	5	NA

11. For your major field of study, circle the adequacy of service assistance and library holdings listed:

	Least Adequate		Most Adequate			Not Applicable
a. reference librarian	1	2	3	4	5	NA
b. microfilm/microfiche	1	2	3	4	5	NA
c. catalog (ATLAS)	1	2	3	4	5	NA
d. reserves/circulation	1	2	3	4	5	NA
e. interlibrary loan	1	2	3	4	5	NA
f. periodicals/journals	1	2	3	4	5	NA
g. books	1	2	3	4	5	NA

NEEDS ASSESSMENT AND LIBRARY INSTRUCTION:

12. Acquiring information is important to my coursework and/or job performance.

Strongly Disagree			Strongly Agree		No Opinion
1	2	3	4	5	NA

13. In gathering information in the library, indicate the degree you "found what you needed" because of your

	Lowest				Highest	Not Applicable
a. research ability.	1	2	3	4	5	NA
b. browsing or luck.	1	2	3	4	5	NA
c. urgent need to find the information.	1	2	3	4	5	NA

14. When unable to find what I need in the library, I normally conclude that the library does not have the information.

Strongly Disagree			Strongly Agree		No Opinion
1	2	3	4	5	NA

15. How important to you are the following methods in gathering information for courses?

	Least Important			Most Important		No Opinion
a. reading journals in your field	1	2	3	4	5	NA
b. reading journals in other fields	1	2	3	4	5	NA
c. searching library catalogs	1	2	3	4	5	NA
d. locating citations of sources	1	2	3	4	5	NA
e. consulting a reference librarian	1	2	3	4	5	NA
f. browsing library shelves	1	2	3	4	5	NA
g. using indexes and abstracts	1	2	3	4	5	NA
h. reading reviews	1	2	3	4	5	NA

16. To what degree can you determine (on your own) the value or relevance of a source to your research task?

Lowest				Highest	No Opinion
1	2	3	4	5	NA

17. When unable to determine the value or relevance of a source on your own (question 16), indicate the degree you normally seek

	Lowest				Highest	Not Applicable
a. no assistance to evaluate.	1	2	3	4	5	NA
b. reference librarian assistance.	1	2	3	4	5	NA
c. class professor assistance.	1	2	3	4	5	NA
d. friend/colleague assistance.	1	2	3	4	5	NA

18. How useful would the following methods of finding information be for your needs?

	Least Useful				Most Useful	No Opinion
a. library how-to handouts	1	2	3	4	5	NA
b. self-paced library workbook exercises	1	2	3	4	5	NA
c. in-class visiting lecturer	1	2	3	4	5	NA
d. in-library conducted instruction	1	2	3	4	5	NA
e. information from classroom professor	1	2	3	4	5	NA
f. computer help screens	1	2	3	4	5	NA
g. help as needed from a reference librarian	1	2	3	4	5	NA

19. List current services, resources or facilities that you value most highly:

a. ____________________

b. ____________________

c. ____________________

20. List suggestions to improve library services, resources or facilities:

a. ____________________

b. ____________________

c. ____________________

Appendix C: Cover Letters

12 November 1991

Dear Colleague:

In support of the college Ad Hoc Curriculum Study Committee Final Report's recommendation that departments include communication, thinking and research skills, I am conducting a doctoral study through Nova University to assess Citadel faculty and student library use/needs and user education. Eliciting suggestions is as essential as evaluating the use and perception of existing library services.

Kindly take 10-15 minutes to complete the attached questionnaire and return it unsigned through campus mail by 22 November. Only the researcher and assistants will have access to individual information, and only statistical data will be published.

Your willingness to participate reflects clearly that you share my belief in the library's importance to the college mission. Furthermore, the findings from this survey will help the library meet SACS (Southern Association of Colleges and Schools) assessment. Your Department Head and the college Deans will receive a summary of my findings and conclusions. Thank you for your thoughtful cooperation.
Sincerely,

J. Edmund Maynard
Lieutenant Colonel
Circulations Librarian

Endorsements:

Zelma G. Palestrant
Lieutenant Colonel
Director of Library Services

Thomas W. Mahan
Colonel
Dean of Graduate Studies

Isaac S. Metts, Jr.
Colonel
Dean of Undergraduate Studies
Enclosures:
Questionnaire
Self-addressed envelope

12 November 1991

Dear Student:

The library is an integral part of your academic experience. To serve you better, as Circulations Librarian, I want to assess student use and evaluation of library services and resources. Kindly take 10-15 minutes to respond thoughtfully to the attached questionnaire. Then, return it unsigned through the enclosed self-addressed, stamped envelope before 22 November. I assure you that only the researcher and assistants will have access to individual information and that only statistical data will be published.

Both Graduate and Undergraduate Deans will receive a summary of my findings and conclusions should you wish to review them. I will also have copies on file in the library. Thank you for participating in this study, part of my dissertation for a doctorate from Nova University. You may take pride in knowing that your cooperation will benefit you, your classmates, and all future Citadel students.
Sincerely,

J. Edmund Maynard
Lieutenant Colonel
Circulations Librarian

Endorsements:

Zelma G. Palestrant Lieutenant Colonel Director of Library Services	Thomas W. Mahan Colonel Acting Dean of Graduate Studies

Isaac S. Metts, Jr.
Colonel
Dean of Undergraduate Studies
Enclosures:
Questionnaire
Self-addressed envelope

12 November 1991

Dear Cadet:

The library is an integral part of your academic experience. To serve you better, as Circulations Librarian, I want to assess student use and evaluation of library services and resources. Kindly take 10-15 minutes to respond thoughtfully to the attached questionnaire. Then, return it unsigned through the enclosed self-addressed envelope before 22 November. I assure you that only the researcher and assistants will have access to individual information and that only statistical data will be published.

The Undergraduate Dean will receive a summary of my findings and conclusions should you wish to review them. I will also have copies on file in the library. Thank you for participating in this study, part of my dissertation for a doctorate from Nova University. You may take pride in knowing that your cooperation will benefit you, your classmates, and all future cadets.

Sincerely,

J. Edmund Maynard
Lieutenant Colonel
Circulations Librarian

Endorsements:

Zelma G. Palestrant
Lieutenant Colonel
Director of Library Services

Thomas W. Mahan
Colonel
Acting Dean of Graduate Studies

Isaac S. Metts, Jr.
Colonel
Dean of Undergraduate Studies

Enclosures:
Questionnaire
Self-addressed envelope

Biographical Sketch

J. Edmumd Maynard is an Associate Professor of Library Science at The Citadel, The Military College of South Carolina at Charleston, SC. He has been Circulations Librarian and Assistant Cataloger, Acting Director, Coordinator of User Services, and currently Circulations Librarian during his tenure at the college library. Prior to joining The Citadel faculty in 1967, he taught high school English in public school.

Mr. Maynard is married and has one stepson. He grew up in Sumter, SC, and in 1967, received a Bachelor of Arts in English from Berry College in Rome, Georgia. In 1967, he received a Master of Science in Library Science from Louisiana State University in Baton Rouge, LA. In 1982, he received a Master of Science in Personnel Management from Central Michigan University, Mount Pleasant, MI.

Mr. Maynard is the author of articles on both library instruction and a knowledge-based application of expert systems to library applications. He will continue research in intelligent library instruction applications.

Nova University
Center for Computer and Information Science

I certify that I have read and am willing to sponsor this dissertation submitted by J. Edmund Maynard. In my opinion, it conforms to acceptable standards and is fully adequate in scope and quality as a dissertation for the degree of Doctor of Science (Sc.D.) at Nova University.

February 1, 1993 — Marilyn Kemper Littman
Date — Name of Chair

I certify that I have read this document and in my opinion it conforms to acceptable standards and is fully adequate in scope and quality as a dissertation for the degree of Doctor of Science (Sc.D.) at Nova University.

2/18/93
Date — Name of Committee Member

I certify that I have read this document and in my opinion it conforms to acceptable standards and is fully adequate in scope and quality as a dissertation for the degree of Doctor of Science (Sc.D.) at Nova University.

February 5, 1993 — Patricia B Kistenmacher
Date — Name of Committee Member

This dissertation was submitted to the Central Staff of the Center For Computer and Information Sciences of Nova University and is acceptable as partial fulfillment of the requirements for the degree of Doctor of Science (Sc.D.) at Nova University.

February 1, 1993 — Marilyn Kemper Littman
Date — Name of Program Director

April 27, 1993 — Edward
Date — Edward Simco, Dean
Center for Computer
and Information Science